



DOE/EH-0591

# **Westinghouse Savannah River Company:**

**Report from the  
DOE Voluntary Protection Program  
Onsite Reviews,  
*February 24-March 7, 1997, and June 15-19, 1998***

**U.S. DEPARTMENT OF ENERGY**  
Office of Environment, Safety and Health  
Office of Worker Health and Safety  
Office of Occupational Safety and Health Policy  
Washington, D.C. 20585

**May 1999**



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# Foreword

## VPP—"The New National Model"

The overwhelming success of the Voluntary Protection Programs (VPP) has been voiced by people at all levels of government, management, and labor over the past sixteen (16) years. The VPP and those people and organizations associated with its success have been the recipients of numerous commendations and awards including multiple "Hammer" awards from the Vice President of the United States.

*"The new national model of government regulation is patterned on the successes of programs such as the Voluntary Protection Programs (VPP), which is administered by the Occupational Safety and Health Administration (OSHA) and the Department of Energy (DOE)."*

The White House  
Office of the Vice  
President  
September 26, 1995

At a White House ceremony in 1995, the Vice President presented two Hammer Awards to recognize the positive impact that VPP had with regard to the National Performance Review (NPR) initiative on reinventing government. The Vice President stated, "It [VPP] is about working in partnership with common goals, instead of as adversaries to protect the safety and health of our workers. It's about focusing a lot less on red tape, and a lot more on results. The Voluntary Protection Programs is the premier example of partnership between government, management and labor."

## OSHA-VPP

Since its creation by the Occupational Safety and Health Administration (OSHA) in 1982, VPP has established the credibility of cooperative action among government, industry, and labor to achieve excellence in worker health and safety. As of 1997, there were 394 participants in the Occupational Safety and Health Administration

Voluntary Protection Program (OSHA-VPP). A variety of major industries are represented in OSHA-VPP including research and development, construction, utilities, health care, petrochemical, textiles, storage and distribution, wood and paper products, industrial chemicals, and many others.

Injury incident rates for OSHA-VPP participants are 55 percent below the expected average for similar industries. Lost workday injury rates at participating worksites are 62 percent below the expected average for similar industries and workers' compensation costs showed a 52 percent reduction.

## DOE-VPP

The U.S. Department of Energy (DOE) recognizes that true excellence can be encouraged and guided, but not standardized. For this reason, on January 26, 1994, the Department initiated the DOE Voluntary Protection Program (DOE-VPP) to encourage and recognize excellence in occupational safety and health protection. This program closely parallels OSHA-VPP. DOE-VPP outlines areas where DOE contractors and subcontractors can surpass basic compliance with DOE orders and OSHA standards. The program encourages the "stretch for excellence" through systematic approaches that involve contractor and subcontractor employees of all levels in the safety program. DOE-VPP emphasizes creative solutions through cooperative efforts by managers, employees, and DOE.

The DOE-VPP consists of three programs, with names and functions similar to those in OSHA-VPP. These programs are STAR, MERIT, and DEMONSTRATION. The STAR program is the pinnacle of DOE-VPP. This program is aimed at organizations with truly outstanding safety and health programs. The MERIT program is a steppingstone for contractors and subcontractors that have very good safety and health programs but need

additional time and DOE guidance to achieve the excellence denoted by STAR status. The DEMONSTRATION program is rarely used; it allows DOE to recognize achievements in unusual situations about which DOE needs to learn more before determining approval requirements for STAR status.

Requirements for DOE-VPP participation are based on comprehensive, integrated management systems where employees are actively involved in evaluating, preventing, and controlling potential hazards at the site. DOE-VPP is designed to apply to all contractors in the DOE complex and to encompass production facilities, research and development operations, environmental remediation activities, and various subcontractors and support organizations.

DOE contractors are not required to apply for participation in the DOE-VPP. In keeping with the OSHA-VPP philosophy, *participation is strictly voluntary*. Additionally, any participant may withdraw from the program at any time.

Contractors interested in participating in DOE-VPP evaluate how well their safety and health programs implement the DOE-VPP requirements contained in *U.S. Department of Energy Voluntary Protection Program, Part I: Program Elements*. They may decide to submit an application using *Part III: Application Guidelines*.

The steps of the application review process described in *Part II: Procedures Manual* involve the area office, operations office, and program office to independently assess the application's completeness and the applicant's qualifications for DOE-VPP recognition. Comments from the review are resolved before the application is submitted to the Office of Worker Health and Safety (EH-5).

DOE-VPP staff members may augment the application's information by requesting additional information, visiting the applicant's site, consulting the program office, talking to the applicant's OSHA-VPP outreach partner, or by

requesting input from the applicant's DOE-VPP customer representative.

If the DOE-VPP Team approves the application, an onsite review is scheduled as described in *Part II: Procedures Manual*. Team members are selected based on one or more of the following criteria:

- Is the candidate a subject matter expert appropriate to the site's activities and complexity?
- Does the candidate possess prior VPP experience (DOE and/or OSHA)?
- Does the candidate bring union representation to the team?
- Is the candidate a safety or health professional from outside of the Office of Environment, Safety and Health (EH)?
- Is the candidate free of any apparent conflict of interest?

The Onsite Review Team interviews a cross section of employees and management, reviews documents, and makes observations during facility walkthroughs to evaluate the applicant's implementation of DOE-VPP criteria found in *Part IV: Onsite Review Handbook*. During daily team meetings, Review Team members assess findings, address issues, and seek additional input. At the review's conclusion, the Team presents its recommendation for the level of DOE-VPP recognition to the contractor.

The Team prepares an *Onsite Review Report* that contains the recommendation for recognition, and submits it to the Assistant Secretary for Environment, Safety and Health (EH-1) for approval. The contractor is notified of the Assistant Secretary's decision, and, if approved, the DOE-VPP Headquarters office (EH-51, Office of Occupational Safety and Health Policy) in coordination with the local DOE field office arranges to present the DOE-VPP flag to the site.

This report summarizes the Initial and Update Review Teams' findings from the evaluation of

activities at the Westinghouse Savannah River Company (WSRC) during the weeks of February 24-March 7, 1997, and June 15-19, 1998. The efforts and accomplishments of WSRC represent a milestone in the Department's efforts to encourage employee empowerment and to change the safety culture in DOE from compliance-driven *reactivity* to continuous improvement-driven *proactivity*.

The purpose of this report is to provide EH-1 with an assessment against the DOE-VPP criteria, together with the other information necessary to make the final decision regarding the disposition of WSRC's application efforts for DOE-VPP. Included are synopses of Team member findings, and the Team's final recommendation for the site's DOE-VPP recognition. ~





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# Abbreviations and Acronyms

<b>ALARA</b>	—as low as reasonably achievable
<b>ARB</b>	—accident review board
<b>B&amp;W</b>	—Babcock & Wilcox
<b>BLS</b>	—Bureau of Labor Statistics [of the U.S. Department of Labor]
<b>BNFL</b>	—British Nuclear Fuel Limited
<b>BSRI</b>	—Bechtel Savannah River, Inc.
<b>CAT</b>	—consolidated annual training
<b>CCP</b>	—Chemical Control Program
<b>CHP</b>	—Certified Health Physicist
<b>CIH</b>	—Certified Industrial Hygienist
<b>CIP</b>	—continuous improvement process
<b>CPEP</b>	—Craft Performance Evaluation Program
<b>CPR</b>	—cardiopulmonary resuscitation
<b>CSP</b>	—Certified Safety Professional
<b>DOE</b>	—[U.S.] Department of Energy
<b>DOE-VPP</b>	—U.S. Department of Energy Voluntary Protection Program
<b>DRB</b>	—Design Review Board
<b>DWPF</b>	—defense waste processing facility
<b>EH</b>	—Office of Environment, Safety and Health
<b>EH-1</b>	—Assistant Secretary for Environment, Safety and Health
<b>EH-5</b>	—Office of Worker Health and Safety
<b>EH-51</b>	—Office of Occupational Safety and Health Policy
<b>EOC</b>	—Emergency Operations Center
<b>ES&amp;H</b>	—environment, safety, and health
<b>ESH&amp;QA</b>	—Environmental Safety, Health and Quality Assurance
<b>FEB</b>	—Facility Evaluation Board
<b>GET</b>	—General Employee Training
<b>HAZMAT</b>	—hazardous materials
<b>JHA</b>	—job hazard analysis
<b>JPA</b>	—Job Performance Aid
<b>LWD</b>	—lost workday

**LWDI**—lost-workday incidence  
**MSDS**—material safety data sheet  
**NDT**—nondestructive testing  
**NIOSH**—National Institute for Occupational Safety and Health  
**NPR**—National Performance Review  
**OJT**—on-the-job training  
**ORPS**—Occurrence Reporting and Processing System  
**ORR**—Operational Readiness Review  
**OS&HD**—Occupational Safety and Health Department  
**OSHA**—Occupational Safety and Health Administration [of the U.S. Department of Labor]  
**OSHA-VPP**—Occupational Safety and Health Administration Voluntary Protection Program  
**OSHT**—Occupational Safety and Health Technologist  
**PM**—preventive maintenance  
**PPE**—personal protective equipment  
**RBOF**—receiving basin for offsite fuel  
**RCT**—Radiological Control Technician  
**RI**—recordable injury  
**RII**—recordable injury incidence  
**SAT**—Systematic Approach to Training  
**S&H**—safety and health  
**SIC**—standard industrial classification  
**SOP**—Special Overtime Personnel  
**SRS**—Savannah River Site  
**SRTC**—Savannah River Technical Center  
**SRSOC**—Savannah River Site Operations Center  
**STR**—Subcontract Technical Representative  
**TRAIN**—Training Records and Information Network  
**VPP**—Voluntary Protection Program  
**WCG**—Work Control Group  
**WCP**—Work Clearance Permit  
**WMS**—Work Management System  
**WSI**—Wackenhut Services, Inc.  
**WSRC**—Westinghouse Savannah River Company

## Executive Summary

This report summarizes the Department of Energy Voluntary Protection Program (DOE-VPP) Initial and Update Review Teams' findings from the onsite evaluations of the Westinghouse Savannah River Site (SRS), conducted February 24-March 7, 1997, and June 15-19, 1998. The site was evaluated against the program requirements contained in *U.S. Department of Energy Voluntary Protection Program, Part I: Program Elements* to determine its success in implementing the five tenets of DOE-VPP.

### SRS

SRS is a U.S. Department of Energy facility operated and managed under a contract by Westinghouse Savannah River Company (WSRC). The site is located approximately 25 miles southeast of Augusta, Georgia, and covers 198,344 acres, bordering on the Savannah River. SRS was constructed in the early 1950s to produce basic materials used in national defense programs. Since the early 1990s, facility operations have focused on national security work, environmental cleanup and waste management, and economic development and technology transfer initiatives.

### Onsite Review Team

Onsite reviews were conducted at WSRC by an Initial Team from February 24-March 7, 1997, and by an Update Review Team from June 15-19, 1998. The interim delay was caused by events at the site that initiated regulatory review. Established policy requires that Voluntary Protection Program (VPP) activity be suspended while relevant regulatory actions are underway. The Initial Review Team was composed of 20 individuals, representing a diverse cross-section of the Department. Members included managers and safety and health professionals. Team members were experienced with VPP principles, possessed safety and health backgrounds, had management experience, and with the exception of one, had prior experience conducting a VPP

onsite evaluation. The six-member Update Team had similar backgrounds.

### Evaluation Summary

The Initial Review Team concluded that WSRC met or surpassed all DOE-VPP requirements, with the exception of 12 minor findings and 5 recommendations. WSRC was asked to resolve the findings within 90 days. During a follow-up visit in January 1996, representatives of the Team verified that all 90-day actions were completed. The Update Team detected though that the program did not demonstrate thorough and meaningful employee involvement. The ability to attain and sustain VPP-level performance on employee involvement is a significant challenge. Large companies with multiple layers of management and geographically disperse personnel have particular difficulty. The following integrates both Teams' conclusions for each of the five DOE-VPP tenets:

**i Management Leadership**—WSRC has used the VPP process to make adjustments in its management style. The company has a long history of top down, command and control management. Since beginning the quest for VPP recognition, management has sought opportunities to engage workers in safety and health related processes. WSRC has come a long way. Employees believe that management is committed to safety. Everyone seemed familiar with the philosophy: "Zero Injuries, One Day at a Time." WSRC has several layers of middle management; communications can be difficult in large multi-layered organizations. The Onsite Review Teams were impressed with WSRC's efforts to facilitate communication on safety issues.

WSRC management continues to explore methods and approaches to increase employee involvement. The need for disciplined operations in Nuclear Operations has caused progress to be slow. Top management is determined to

“provide workers with more degrees of freedom within which to operate safely.” In the opinion of the Review Teams, WSRC management is doing just what they should with regard to employee involvement. They are carefully and decidedly modifying and increasing worker involvement, while ensuring safe conduct of operations and the appropriate levels of discipline are maintained.

**f Employee Involvement**—A strong safety culture exists where all levels of employees feel empowered to voice safety concerns. The site is to be congratulated for this outstanding success. The Onsite Review Teams found a pervasive pattern of workers who were completely reliant on supervisors to mitigate safety and health hazards. This “one size fits all” approach leaves workers powerless to take any initiative. Besides generally relying on supervisors to correct problems, workers were generally not part of the team that would fix the problem. Secondly, workers indicated almost no ownership of identified hazards and a lack of empowerment to address hazards within their limited procedural perspective. WSRC management showed recognition of this problem during the update review. A WSRC manager stated during an interview, “[We] need to provide more degrees of freedom within safe boundaries for employees to operate.”

Several significant opportunities for enhanced employee involvement remain largely unrealized. Many aspects of the work planning process, committee involvement, and accident investigations are performed without the primary involvement of the front line worker. The vast majority of front line workers interviewed indicated that although their input was solicited and incorporated appropriately in these processes they were not drawn in as primary team members involved from start to finish. Worker involvement at WSRC appears reactive rather than proactive. Front line workers were not asked for input in the development of procedures, but rather were asked to review procedures after they had been developed. This does not maximize worker input and the use of

their fundamental knowledge of the process and associated hazards. The Team noted an opportunity for improvement in the area of employee involvement. The site has accepted this as a goal area to achieve Star status.

**i Worksite Analysis**—WSRC and Bechtel Savannah River, Inc. (BSRI) have a comprehensive worksite analysis program that meets all DOE-VPP sub-tenets. WSRC has developed and implemented systems to ensure that each time equipment, materials, processes, or facilities are purchased or significantly modified, they are analyzed for hazards prior to use. In addition, facilities at SRS periodically undergo a vigorous independent self-assessment by the Facility Evaluation Board (FEB), which is composed of WSRC personnel who have extensive field experience, in-depth technical competence in selected fields, and are trained in performance-based assessment techniques. The independent assessments evaluate the status of functional areas as well as validate the effectiveness of the self-assessment programs. All non-routine work packages initiated by workers undergo industrial hygiene, radiation protection, and/or safety reviews.

The Bechtel Accident Review Board (ARB) process is excellent. Especially noteworthy is the way the ARB assures that every contributory factor to an accident is investigated and controlled. Another means to control hazards at WSRC is through employee reports of hazards. Employees can report safety and health concerns in many ways. The most widely used method of reporting unsafe conditions or acts, is by bringing the condition or act to the attention of their immediate supervisor instead of using one of the six formal programs. If the employee wishes to remain anonymous, he or she can use several telephone hotlines. Employee interviews indicated that they were strongly encouraged by line management to report all safety and health concerns at any time, without fear of reprisal. Manager/supervisor audits are performed on a varied schedule to maintain safety surveillance of the employees and work areas. Recently, WSRC has initiated a

Job Hazard Analysis program throughout the site and several departments are aggressively implementing the program to analyze routine hazards.

**ï Hazard Prevention and Control**—The hazards identified through WSRC's worksite analysis process are eliminated or mitigated through effective implementation of controls. WSRC occupational safety and health and quality assurance program is adequately staffed to provide the professional expertise and support necessary for the contractor to conduct operations safely and responsibly. A significant number of the professionals on the WSRC staff hold credentials such as Certified Industrial Hygienist (CIH), Certified Health Physicist (CHP), and Certified Safety Professional (CSP). Additionally, for construction-related operations, several individuals hold certified Occupational Safety and Health Technologist (OSHT) designations through the American Board of Industrial Hygiene.

Walkthroughs of facilities by Onsite Review Team members substantiated the WSRC approach to the required hierarchy of hazard prevention and control measures. The industrial hygiene program requires material substitution to reduce potential hazards. Material substitution has been embraced and yielded cost reductions associated with waste chemical/material disposal. Additionally, chemical use and inventories are well managed through the Chemical Control Program (CCP). The preference for engineering controls was clearly evident at WSRC. Production facilities, maintenance areas, and research laboratories all contained examples of built-in protective methods.

WSRC has re-engineered the Total Quality recognition program to recognize and honor individuals and teams who achieve exemplary performance in the categories of Safety, Disciplined Operations, Cost Effectiveness, and Continuous Improvement. Hazards are also controlled through an effective disciplinary system. A condition of employment at the site is

to follow WSRC's established rules of proper conduct. Employees involved in any violation of the rules of conduct, or who fail to perform their jobs in a safe and satisfactory manner in conformance with site safety rules, are subject to disciplinary action. Disciplinary action can range from informal contact up to and including termination of employment, provided the employee has been advised of identified shortcomings and given the opportunity to improve performance.

**õ Safety and Health Training**—WSRC maintains a comprehensive and well-managed safety and health training program. WSRC utilizes the Systematic Approach to Training (SAT) to ensure that employees get the training they need, and that the training is consistent and of high quality. The training employees receive is determined by their job, roles and responsibilities, and hazards associated with the work. Course offerings included a complete array of safety and health related subjects. All employees receive General Employee Training (GET). Several Onsite Review Team members attended the site's GET course. The Review Teams felt that the course was comprehensive and well done. Discussions with workers about training indicated that most workers felt that training was top flight at WSRC.

The training program also focuses on managers. One program designed to enhance manager competency requires them to attend a set of specific, general, regulatory, and site-specific courses relating to safety and health. These are intended to improve general safety and health knowledge, as well as hazard identification skills.

The WSRC training program under SAT also requires that a Department choosing to perform On-the-Job Training (OJT) develop written lesson plans and properly document this type of training as they would any other. The Training Records and Information Network (TRAIN) is the onsite program management tool utilized to ensure that employees are receiving the proper training at the proper time and that the training is documented.

The Onsite Review Teams felt that the WSRC training program is of high caliber and is an integral aspect of the safety and health program.

**Recommendation**

Based on the information acquired during the onsite visits, the Review Teams unanimously recommended that WSRC be accepted into the DOE-VPP at the MERIT level. ~



# I. Introduction

The Westinghouse Savannah River Company (WSRC) Department of Energy Voluntary Protection Program (DOE-VPP) onsite reviews were conducted by an Initial Team from February 24-March 7, 1997, and by an Update Team from June 15-19, 1998. The site was evaluated against the program requirements contained in *U. S. Department of Energy Voluntary Protection Program, Part I: Program Elements* to determine its success in implementing the five tenets of DOE-VPP. The Initial Onsite Review Team consisted of 20 members, including staff from the Department of Energy (DOE), Occupational Safety and Health Administration (OSHA), DOE contractors, other government agencies/contractors, and private industry. The Update Team was comprised of 6 professionals, including a former Labor Union official. Team member names and areas of responsibility can be found in Appendices I and II of this report.

The site is owned by DOE and operated by an integrated team of contractors led by WSRC. The site is located approximately 25 miles southeast of Augusta, Georgia, and covers 198,344 acres (310 square miles), encompassing parts of Aiken, Barnwell, and Allendale counties in South Carolina, and bordering on the Savannah River. The site was constructed in the early 1950s to produce basic materials used in national defense programs. Since the early 1990s, facility operations have focused on national security work, environmental cleanup and waste management, and economic development and technology transfer initiatives.

The current Savannah River Site (SRS) mission involves:

- recycling and reloading tritium for the weapons stockpile;
- environmental cleanup and waste management;

- special nuclear materials storage, research and development, and technology transfer; and
- disposition of nuclear materials and facilities.

WSRC is responsible for the site's nuclear facility operations; Savannah River Technology Center; environment, safety, health, and quality assurance; and all of the site's administrative functions. The integrated team of contractors also includes Bechtel Savannah River, Inc. (BSRI), which is responsible for environmental restoration, project management, engineering, and construction activities; Babcock & Wilcox (B&W) Savannah River Company, which is responsible for facility documentation and decommissioning; and British Nuclear Fuel Limited (BNFL) Savannah River Corporation, which is responsible for the site's solid waste programs. About 16,000 people are employed at SRS, making it one of the largest employers in South Carolina.

WSRC has been investigating participation in the DOE-VPP program since 1993. Prior to submitting their DOE-VPP application, the site participated in the DOE-VPP's Outreach Program and was partnered with Searle Pharmaceuticals of Augusta. The geographical proximity of the two plants was a positive factor in the match-up. Searle Pharmaceuticals participated in all aspects of WSRC's preparation for DOE-VPP status. Participation in the outreach program allowed WSRC to benchmark its safety and health programs and position itself to apply for DOE-VPP status.

The primary purpose of the onsite reviews was to assess the site's implementation of systems and programs to meet DOE-VPP criteria. The Initial Team verified the information in the site's application by conducting more than 114 formal and informal interviews with site personnel, both managerial and nonmanagerial. The Update Team conducted more than 75 interviews.



## II. Quantifiable Program Results

### A. Contractor Rates

WSRC processes and maintains its own injury and illness records and those for three other contractors, namely, Bechtel Savannah River Inc. (BSRI), British Nuclear Fuels Limited (BNFL) Savannah River Corporation, and Babcock and Wilcox (B&W) Savannah River Company. WSRC 8Q, *Employee Safety Manual*, procedure 18, “Reporting, Responding, Investigating, and Recording of Occupational Injury/Illness or Near Miss,” outlines the requirements for reporting, investigating, and recording occupational injuries and illnesses.

The WSRC employee responsible for processing and maintaining these records was very knowledgeable in recordkeeping procedures and requirements. When interviewed, the employee was readily able to classify and differentiate between first aid cases, restricted work cases, lost workday cases, and total recordable cases.

A thorough review of injury and illness records was conducted. The review and evaluation revealed that procedures to process and record information were generally in accordance with those encountered in the private sector and described in Occupational Safety and Health Administration (OSHA) guidelines. However, deficiencies were discovered concerning restricted work activity determinations and classification of recordable cases. These discrepancies were also noted and described in previous investigations conducted by the Office of the Inspector General and subsequently by the Office of Environment, Safety and Health’s Office of Oversight. **At the time of this onsite review, WSRC was in the process of addressing these issues.**

The Initial Team noted that there was a tendency for BSRI to sometimes challenge the recordability of an injury or illness case, particularly with respect to a restricted work

classification. This was evidenced by “justifications” contained in their files to explain the reason(s) an event should not be considered a lost workday or restricted work activity case. Notwithstanding that it is BSRI’s responsibility to determine the recordability of their respective cases, the Review Teams recommend that WSRC personnel be allowed to make the final determination on recordability in order to maintain consistency in the recordkeeping process.

The rates shown in the tables below reflect the data for the three previous calendar years:

**Table 1 – Injury Rates at WSRC**

SIC Code 2819

Calendar Year	LWD Injury Case s	RII Cases	Employee - Hours Worked	LWDI Rate	RII Rate
1995	62	192	27,479,465	0.451	0.946
1996	52	166	25,331,204	0.411	0.900
1997	57	194	23,266,284	0.490	1.178
3-Year Average Rates				0.450	1.008
BLS 1996 National Average for SIC 2819:				1.8	3.6

The standard industrial classification (SIC) for WSRC is 2819. Under SIC 2819, the most current (1996) lost-workday incidence (LWDI) rate is 1.8 and the recordable injury incidence (RII) rate is 3.6.

**Table 2 – Injury Rates at BSRI**

SIC Code 1620

Calendar Year	LWD Injury Case s	RII Cases	Employee - Hours Worked	LWDI Rate	RII Rate
1995	50	165	4,118,896	2.428	5.584
1996	30	112	3,210,277	1.869	5.109
1997	34	99	2,537,271	2.680	5.124
3-Year Average Rates				2.326	5.272
BLS 1996 National Average for SIC 1620:				4.2	8.7

The SIC for BSRI is 1620. Under SIC 1620, the most current (1996) LWDI rate is 4.2 and the RII rate is 8.7.

As the above table shows, the WSRC/BSRI rates easily meet the program requirement that the three-year average LWDI and RII be at or below the most recent averages for the respective SIC to which they are compared.

## B. Subcontractor Rates

WSRC tracks the aggregate total recordable and lost-workday case rates of all subcontractors. WSRC 8Q, *Employee Safety Manual*, requires that subcontractors report all injuries and illnesses to their Subcontractor Technical Representative and specifies that they must maintain an OSHA 200 log.

Subcontractors are periodically reminded of the requirements for reporting injuries and illnesses through the “Safety News for Subcontractors” newsletter. A recent issue of the newsletter was reviewed and found to be informative.

WSRC safety personnel conduct periodic audits of subcontractor recordkeeping to monitor compliance with requirements. The Teams reviewed a sample of these audit reports, which were determined to be thorough. The audits cover both construction and service subcontractors.

The following table provides the rates for subcontractors:

**Table 3 – WSRC Subcontractor Injury Rates**

SIC Code 1700

Calendar Year	LWD Injury Cases	RII Cases	Employee -Hours Worked	LWDI Rate	RII Rate
1995	58	102	2,836,668	4.089	7.192
1996	20	51	2,056,152	1.945	4.961
1997	19	36	1,611,526	2.358	4.468
3-Year Average Rates				2.797	5.540
BLS 1996 National Average for SIC 1700:				4.8	10.4

Although subcontractors provide services such as cafeteria food service and miscellaneous

vendor services, the predominant activity by subcontractors is construction-related. Thus, the Onsite Review Teams decided the activities would be covered more appropriately under SIC 1700 for construction. Under SIC 1700, the most current (1996) LWDI rate is 4.8 and the RII rate is 10.4. As shown in the table, the LWDI and RII rates for subcontractors are below the averages for SIC 1700 and meet program requirements. ~

## III. Management Leadership

The Department of Energy Voluntary Protection Program (DOE-VPP) requirements for excellence in management leadership were met by Westinghouse Savannah River Company's (WSRC) demonstration of top-level management commitment to occupational safety and health and the DOE-VPP. Management's commitment was confirmed by Review Team members' observations of operations and site conditions, as well as by interviews with associates. The following subsections address the specific areas of leadership listed in the requirements.

### A. Commitment

Clear management commitment to occupational safety and health is demonstrated in many ways at WSRC. The site has a long history of command and control management of worker safety and health protection. In recent years, attention to employee involvement and visible management involvement has increased strikingly. Some of the aspects of commitment are the safety and health policy, the program goal, the objectives set to reach that goal, and the integration of occupational safety and health into all management planning. The site has a safety and health policy that includes a clear statement of priority—safety being the first priority. Employees at all levels could explain the policy in their own words, although they did not always give that statement of priority in response to a question about what the site safety policy was. The goal for the safety and health program selected by the site is to achieve zero injuries—one day at a time. The statement of the goal itself appears to be only safety-related, but the concept also includes health-related illnesses. Although the posters displaying the goal were placed throughout the site, some employees believed that the overall goal for the safety and health program is to achieve DOE-VPP Star status. Most employees know the phrase “zero injuries one day at a time” but may not always

associate it as an overall goal for the safety and health program. The Initial and Update Review Teams were unanimous in their view that employees know that the safety and health program activities are meant to reduce injuries and illnesses to zero and achieve recognition for their effort.

There are several mechanisms for developing objectives to reach the site safety and health program goal. Non-financial objectives, which determine in part the incentives portion of compensation for top managers, include quantifiable objectives for the number of injuries. Ongoing objectives used for measuring program performance annually are derived from the DOE-VPP elements, sub-elements, and criteria from the *U.S. Department of Energy Voluntary Protection Program, Part IV: Onsite Review Handbook*. Time-specific objectives are also set as a result of annual program evaluation. Over 50 annual program evaluations were conducted by the site departments, and in some cases, small divisions in 1996. Each of these organizations also produces a safety program annually, listing objectives that come from either the site or from the individual organization evaluation reports.

During the employee interviews, one chairperson for the committee that produces the safety program and its objectives, described using the organization evaluation as well as objectives suggested by the site committee to produce the objectives used for the safety and health program.

Overall long-term site planning specifically includes occupational safety and health. Day-to-day planning for changes at the site includes safety and health considerations. (For more information, see the discussion in Section V. *Worksite Analysis* of this report.) The commitment of site management to safety and health excellence was highly visible to both Review Teams.

## B. Written Program

All elements of DOE-VPP, including management leadership, employee involvement, worksite analysis, hazard prevention and control, and safety and health training, are part of a written safety and health program. The design of the safety and health program is appropriate for the size and complexity of nuclear and industrial hazards of the site.

## C. Responsibility

Responsibility for safety and health at WSRC is clearly assigned through job descriptions, the site safety manual (WSRC 8Q, *Employee Safety Manual*), and specific safety program procedures. The site is moving towards more standardized language for safety responsibilities except for those high level employees whose jobs are unique. In all cases, the statement of safety responsibilities will be listed first in the job descriptions. Employees interviewed at all levels indicated an understanding of their safety and health responsibilities. No problems of overlaps or gaps in assignment of responsibility were discovered in the course of the onsite reviews. These responsibilities have been in place in this manner for more than the required 12 months.

## D. Authority and Resources

Personnel responsible for safety and health operations have full authority to shut down operations or equipment for any given operation. Personnel responsible for development and implementation of the safety and health program have adequate resources to perform the desired tasks, including staffing, space, equipment, training, promotions, and capital expenditures. The health and safety staff is highly qualified and management ensures essential resources are provided to maintain this high quality. Authority and resources are provided to ensure environment, safety, and health (ES&H) is integrated into the operations as a normal business process. WSRC must maintain their dedicated health and safety staff in order to meet

the responsibility for assisting in the development and management of ES&H matters.

## E. Line Accountability

Line accountability for safety and health is mostly accomplished through the performance evaluation systems, although discipline and awards systems also play an important role. The site requires that all performance evaluations cover safety. The site recently transitioned to a system that standardized performance evaluations for all four companies that make up WSRC.

At present, WSRC and Bechtel Savannah River Incorporated (BSRI) employee personnel files are housed in the same area but maintained separately. Personnel files were sampled randomly in both sections. Performance evaluation files sampled for most BSRI exempt employees contained at least one or more clear personal objectives for safety. Supervisor evaluations did not always specifically cover the personal safety objectives set for the evaluation.

Four of the unionized crafts that work for BSRI (i.e., electricians, pipefitters, sprinklerfitters, and boilermakers), are individually evaluated on performance in a different system, called "Craft Performance Evaluation Program (CPEP)." Safety is 20 percent of the evaluation. CPEP files were also sampled and found to uniformly include safety. The rest of the crafts do not have performance evaluations due to contract language, but their performance is taken into consideration in reduction-in-force planning. (See the discussion below.)

At WSRC, there is one type of performance evaluation form for exempt employees and another for nonexempt employees. WSRC exempt employees include managerial, non-managerial professional employees, and employees referred to as "special overtime personnel (SOP)." SOPs are employees who are eligible for overtime pay but whose jobs are considered to require enough judgment to exempt them from the labor laws meant to cover

nonprofessionals. All the forms sampled had clear personal objectives for safety and health. As with BSRI, the supervisor's evaluation against those objectives was not always clear.

WSRC nonexempt employees are rated on forms which are preprinted to require a numerical rating for safety, and, therefore, sampled files for nonexempt employees all had safety evaluations. It is not clear from the forms, however, what aspect of safety and health performance resulted in the number rating given for safety, even when a low rating was given.

There are connections between performance evaluations and the ability to be promoted or to receive pay increases for professionals of both companies and the WSRC SOPs. WSRC professionals and SOPs receive a numerical score summarizing their performance evaluations. Pay increases and the ability to be promoted to a higher level are directly connected to that score. When interviewed, employees in this category could clearly state the connection of their safety performance to pay and their ability to be promoted. In addition to performance evaluations, WSRC managers reporting directly to the President receive incentive pay on the basis of both financial and non-financial objectives.

BSRI crafts under CPEP are ranked on the basis of their performance evaluations (40 percent), disciplinary actions (25 percent), absenteeism (20 percent), and time of site service (15 percent). In the case of a tie, performance evaluation is the tie-breaker. The rankings are used as an aid in reduction-in-force actions. For other crafts, the decision about layoffs includes safety performance. Seniority is the last factor to be considered if all else is equal.

Both WSRC and BSRI rank exempt employees within their grade level or groups of grade levels. For BSRI, the ranking of all employees except for the crafts is based on current performance (the latest performance evaluation), sustained performance (past rankings), critical or essential

skills (those with job skills not highly in demand are ranked lower than those whose skills are scarce and in high demand), and whether they have multiple skills. The rankings are then used to decide which employees within these groups will receive pay raises, be promoted, or laid-off.

Nonexempt WSRC employee performance evaluations are connected to pay to the extent that poor performance may result in a withholding of pay raises or increases. Nonexempt employees do not readily make this connection but do see a connection to awards and discipline. Rewards for safety program activities come from the extensive award systems described in Section VI.C of this report.

### **Recommendation**

Ensure that all supervisor evaluations of employee safety and health performance are documented on the performance evaluation forms.

## **F. Visible Management Involvement**

WSRC and BSRI senior management and line management at DOE-VPP have met and exceeded the safety and health program performance requirement of visible management involvement. Management's involvement was verified through document review and formal and informal interviews with management, site employees, and subcontractor employees. The Teams observed strong, highly visible management commitment to DOE-VPP key elements and safety and health leadership.

The safety and health of all site employees and the public have been the first priority at WSRC and BSRI. A primary mandate conveyed by all levels of management to employees is that work will stop immediately if any job is unsafe.

Senior managers, line managers, and first-line supervisors are visibly involved in safety and health, most notably through participation in scheduled (quarterly) safety and housekeeping audits performed jointly by area employees, field

safety engineers, and safety observers. Trained managers and employees conduct pre-job briefings to ensure safe behavior and practices are implemented during all potentially hazardous job tasks. The site's safety and health programs provide employees who are conducting self-inspections with additional opportunities to discuss, in open dialogue with management, findings and corrective actions that may be necessary. The Onsite Review Teams felt there is a true partnership between management, employees, union officials, and subcontractors resulting in the elimination of hazards throughout the site.

During the evaluation, the Initial and Update Teams interviewed upper-level and mid-level managers and first-line supervisors and observed many programs demonstrating visible involvement and commitment to safety and health. Examples include:

Communication of the **SRS Five Imperatives**, which include, in descending priority: Safety, Disciplined Operations, Continuous Improvement, Cost-Effectiveness, and Teamwork. The imperatives and their significance to site-wide operations are communicated and demonstrated to all employees by senior management and the WSRC and BSRI presidents.

The **Policy Review Committee** is composed of the WSRC and BSRI presidents and senior management. The committee establishes site safety and health policies and ensures accountability at all levels of upper management for safety, health, and conduct of safe operations, thereby demonstrating senior management's active involvement in worker safety and health.

A **Site Central Safety Committee** is composed of the WSRC president as chair, senior management, line management, and exempt and nonexempt employees. The committee meets bimonthly to discuss occupational safety issues, radiological safety, environmental protection, and conduct of operations.

**Five Area Central Safety Committees** are composed of line management, exempt, and nonexempt employees. The committees disseminate safety and health information throughout the various site areas to assist line organizations in improving their safety and health programs. The Area Central Committees act as a conduit to cascade down the proceedings and recommendations of the Site Central Safety Committee to the whole site.

The **SRS Annual Safety Conference** includes management participating as conference speakers and attending breakout sessions, thereby encouraging interaction between employees and senior management on safety issues. During the conference, safety and health programs are demonstrated and discussed at-large during public/community partnering sessions that include site employees, senior management, line management, and the public.

A **VPP Owner's Manual** was created jointly by management and employees. The manual is used as a tool to ensure successful implementation of the DOE-VPP philosophy. The manual includes a DOE-VPP introduction, comprehensive description of the DOE-VPP main and sub-elements, program checklist, self-assessment summaries, communication plan, and program evaluation.

**Division/Department Annual Safety Programs** are developed annually by all levels of management and employees to compliment the WSRC/BSRI safety program and DOE-VPP. These programs are guidance documents for the monthly safety meetings. One hundred percent safety meeting attendance is required for all employees and management. Managers and employees actively participate in safety meetings to discuss injuries and illnesses, trending results, and review the monthly safety videotape, *Spectrum*. This safety and health instructional video is produced monthly by the site's audio-visual department, in conjunction with site employees, to highlight various safety topics. Topics, including trending results and employee concerns and feedback, are selected by



management, exempt, and nonexempt employees through the safety activities committee.

**Roundtable Meetings** encourage employee interaction and discussion with management in informal settings. Meetings are composed of a manager and small groups of employees discussing issues raised by employees, such as safety, conduct of operations, policies, and area-specific processes. Roundtable meetings are one example that demonstrates how safety and health communication flows both ways within the WSRC and BSRI organizations.

A **Sitewide Open Door Policy** encourages employees to discuss safety and health issues with management without fear of reprisal. The policy serves as an example of senior management accessibility.

**Safety Observer and Senior Safety Observer Programs**, which include approximately 1,500 employees, are composed of management, exempt, and nonexempt employees who observe potentially unsafe behavior patterns, acts, and conditions. These observers also interact with employees to ensure safe work practices and will stop work to prevent exposure to serious hazards. Management accompanies safety and senior safety observers and field safety engineers as they conduct area self-inspections.

**SRS Safety Newspaper** is a monthly newspaper for SRS site personnel, featuring front-page articles on site safety and health topics. The Teams noted that each edition includes a comprehensive statement and description of the site's safety and health mission, vision, and culture. Management provides the budget and personnel for publication of the newspaper, and employees contribute articles; stories; and safety and health trends, statistics, and programmatic information. This high-quality newspaper is distributed throughout the site at no cost. The SRS News has been in monthly circulation for many years.

**Subcontractor Safety Performance**, as specified in the contract's pre-bid process, holds

subcontractors accountable for maintaining exemplary written safety and health programs and performance. The Teams determined, through interviews with management, Subcontract Technical Representatives (STR), and field safety engineers, that subcontractors comply with all federal, state, and site safety and health policies, procedures, and best practices. Compliance is determined by frequent onsite audits.

## G. Site Orientation

WSRC programs for orienting employees and visitors and for holding employees, visitors, and other personnel working in contractor controlled areas accountable meet DOE-VPP requirements.

Those staying more than ten days receive formal eight-hour General Employee Training (GET) before obtaining a picture badge for unescorted access to the site. GET teaches some safety principles. Subcontractors onsite for more than two days also receive a two-hour safety orientation. Subcontractors delivering materials on a one-time basis (usually one day only) are given one-day badges and are required to have a fully trained contact at the delivery point.

## H. Subcontractor Programs

The subcontractor safety and health program at WSRC is fully effective and meets DOE-VPP requirements. Subcontractors are required to abide by all safety and health program elements. This requirement is contained in the body of contract instruments. A review (sampling) of signed contracts indicates subcontractors have been made aware of the oversight authority of the contractor.

A pre-work evaluation of subcontractors' safety and health programs is conducted by the contractor. A sampling of subcontractor safety and health program descriptions was reviewed. The programs in which deficiencies existed at the time of review by the contractor contained instructions to the subcontractor for program

improvements. Program improvement documentation from the subcontractor was reviewed to verify that corrective actions on program deficiencies were occurring.

Subcontractor selection is based on a review of safety and health program content, statistical data related to workers' compensation rates, and OSHA recordable injury and illness rates. An ongoing subcontractor performance evaluation is performed by the contractor and is the basis for allowing the subcontractor to continue bidding for work on the site. All interviewed contractor and subcontractor employees are aware that safety performance is a primary factor in being selected to perform and continue to perform work on the site. Subcontractors are acutely aware that failure to perform safely as a company or individual will result in penalties up to and including dismissal from the site. Examples of such actions were provided by management and supervisory contractor personnel.

Subcontractors are given assistance by the contractor that allows subcontractor workers to participate in safety suggestion programs, observation programs, pre-work reviews, and a variety of other programs. This is done so that smaller contract firms who lack the resources to develop their own programs can still participate in such programs and maintain uniformity across the site.

Documented inspections by the contractor and subcontractors were reviewed and found to contain required corrective actions and evidence that corrective actions do occur. These documents were for a period greater than the last 12 months.

An incentive program for subcontractors is in place which rewards excellent safety performance. A percentage of the total contract dollars may be awarded during the time of the contract. An example was provided in which a subcontractor received a percent of his contract money at a time into his contract. Other examples were reviewed which indicate this program has been active for approximately one and a half years prior to this review.

Subcontractor activities are monitored daily by a designated STR from the WSRC/BSRI organization who is assigned to monitor the technical progress of a subcontract from start to completion. STRs are involved in the pre-bidding conferences and in pre-construction conferences after a contract is awarded. The contractors selected for a job are required to submit a safety plan within 30 days after being awarded a contract. The plan is reviewed and approved by the safety department. STRs are responsible for completing a daily activity report that records the subcontractor's day-to-day operations. Any safety violations are presented to subcontractors in writing. A review of a sample of daily activity reports by the Initial Review Team verified that safety violations for unsafe conditions were being documented. WSRC Environmental, Safety, Health & Quality Assurance Division publishes a quarterly publication, "Safety News for Subcontractors," that summarizes and trends the unsafe conditions/violations brought about by the subcontractors during the quarter.

Subcontractor injury rates (an aggregate of all subcontractors) are kept and maintained by WSRC personnel responsible for injury/illness recordkeeping. Any subcontractor accidents, injuries, or safety violations are recorded in the daily activity reports. Failure to report injuries or accidents by a subcontractor may result in a monetary penalty. WSRC tracks and trends the subcontractor injury and illness rates on a monthly basis. The injury rates for construction subcontractor activities are below their industry (SIC 1700) average published by the U.S. Department of Labor, Bureau of Labor Statistics.

## **I. Safety and Health Program Evaluation**

Annual safety and health program evaluation at WSRC is usually accomplished at the departmental level, but may be at the division level when the division is small. These evaluations are summarized in the larger division and the overall site safety and health

performance evaluation report. The measurement system for the evaluation is based on the elements and sub-elements of DOE-VPP. The criteria found in *U.S. Department of Energy Voluntary Protection Program, Part IV: Onsite Review Handbook* are used as lines of inquiry in the evaluations. Though the department/division evaluations are not required to cover more than 50 percent of the sub-elements each year with coverage of sub-elements every two years, the site formulates a comprehensive site-wide program evaluation report covering all elements and sub-elements by incorporating information gathered from these 50 or more individual program evaluations.

The approach by the divisions and departments to each evaluation can be quite different, even though all are required to evaluate against the same set of objectives. Some departments and divisions have chosen to cover all sub-elements even though they are not required to do so.

Some evaluations at the departmental or divisional level were quite analytical and provided good information. One was similar to a checklist. The evaluations are frequently treated as if they were audits. It is clear that having “findings” or even recommendations is not thought to be a good thing. Evaluations offer the opportunity to look for ways to improve programs that may not be “wrong” or “bad.”

There were also differences in how well results of the evaluation were incorporated into objectives for the next year. Some consisted only of numerical objectives for injuries; others were ongoing objectives without timelines.

### **Recommendation**

Ensure that all VPP evaluation teams conducting annual program evaluations understand the purpose of the evaluation and the VPP basis for the objectives. Begin evaluation reports with a summary of the recommendations from the last report and the status of any actions decided upon as a result of those recommendations. ~



## IV. Employee Involvement

Savannah River Site (SRS) is large and has many areas where entry is quite complicated. Within those limitations, the site personnel were extremely helpful in making employees at all levels available for interviews.

The ongoing downsizing has made a difference in employee attitudes. Some employees expressed concern about achieving Star status so that “we’ll get more work.” Some construction employees interviewed were still working at the site although they had been notified of imminent termination. Even so, employee interviews provided valuable information to the Review Teams about what the employees themselves knew and understood. On the whole, employees were enthusiastic about safety and health at the site.

Employees interviewed were generally knowledgeable about their safety and health responsibilities. Their appraisal of safety at the site varied by where they worked and generally reflected the same impressions formed by the Teams.

The Onsite Review Teams found a pattern of workers who indicated a culture of mitigating safety and health hazards through supervisors. This “one size fits all” approach leaves workers powerless to take any initiative. When employees are provided no latitude, it is nearly impossible to gain their complete involvement in the safety program. This consistent cultural norm involved two elements that deviated from a Voluntary Protection Program (VPP) STAR level employee involvement program. First, the workers indicated that they generally identified hazards to their supervisors and that supervisors directed corrections. Workers were generally not part of the team that would fix the problem. Secondly, workers indicated almost no ownership of identified hazards and a lack of empowerment to address hazards within their limited procedural perspective. This worker involvement challenge was articulated precisely by Westinghouse

Savannah River Company’s (WSRC) Executive Leadership when they stated, “[We] need to provide more degrees of freedom within safe boundaries for employees to operate.”

Several significant opportunities for enhanced employee involvement remain largely unrealized. Many aspects of the work planning process, committee involvement, and accident investigations are performed without the primary involvement of the front line worker. The vast majority of front line workers interviewed indicated that although their input was solicited and incorporated appropriately in these processes they were not drawn in as primary team members involved from start to finish. Worker involvement at WSRC appears reactive rather than proactive. Front line workers were not asked for input in the development of procedures, but rather were asked to review procedures after they had been developed. This does not maximize worker input and the use of their fundamental knowledge of the process and associated hazards.

WSRC needs to more effectively involve front line workers in the planning and development of work activities and increase worker participation on committees, job hazard analyses (JHAs), and investigations. During the planning phase workers must be able to interact with project engineers, safety professionals, and others as respected and vital participants. Workers and professionals must interact throughout these important processes from start to finish in an atmosphere of teamwork and mutual respect and trust. The aim is to improve employee ownership through engagement. Procedural compliance, morale, and productivity can be improved through enhanced worker involvement in these vital activities. Importantly, this process will increase employee awareness of their safety and health involvement and the scope of limitations necessitated by the operation(s).

WSRC must demonstrate an active plan to convert to employee integrated work planning. WSRC should incorporate the participation of front line workers as team members early on and throughout the conduct of the following processes:

- Work planning,
- Job hazard analyses,
- Accident investigations,
- Committees (both VPP and Health and Safety),
- Safety and health walkthroughs, and
- Near misses review and reporting.

Although efforts have begun at WSRC to address these opportunities, particularly since the incident in F Canyon, the Update Team recommends that worker involvement in these areas be enhanced. It is the consensus of the Team that the majority of work planning and listed activities onsite are largely top down in approach and do not yet adequately incorporate the insights and fundamental knowledge of the front line worker. We recognize the significant progress WSRC has made in this area and the Team is confident that the site can build Star level worker involvement.

Several committees exist at WSRC with opportunities for increased front line worker involvement. Some of these committees include:

The **Site Central Safety Committee** ensures accountability at the upper management level by reviewing, communicating, and trending WSRC safety performance in all areas of safety and health. The President of WSRC is the chair of this committee.

The **Area or Division Central Safety Committee** is a coordinating group for the departments in its area, with emphasis on mutual safety issues. The chair of this committee must be a member of the Site Central Safety Committee.

The **Site As Low As Reasonably Achievable (ALARA) Subcommittee** reviews the overall conduct of the radiological control program; requires and approves WSRC radiological improvement goals; participates in establishing WSRC protection improvement initiatives; and develops and recommends radiological control policies to the WSRC Policy Review Committee. A Level 1 manager is the chair of this subcommittee.

The **Site Safety Activities Subcommittee** plans and implements annual and special safety programs and approves area safety award plans, safety conferences, and the publicity and motivational efforts associated with these activities. A Level 2 or 3 manager is chair of this subcommittee.

The **Site Traffic Subcommittee** evaluates and analyzes vehicle accident data and traffic flow patterns and makes recommendations on preventing vehicle accidents, improving road and parking lot conditions, and driver responsibility. The Occupational Safety and Health Department (OS&HD) Traffic Safety Representative is the chair of this subcommittee.

The **WSRC Site Housekeeping Subcommittee** reviews and/or develops site housekeeping standards and develops/implements programs to improve site housekeeping performance. The chair is a Level 2 or 3 manager.

The **WSRC Site Occupational Health Subcommittee** operates on an ad hoc basis to identify, evaluate, and control stresses in the workplace which can adversely affect health. The subcommittee may conduct special hazard reviews upon request of the WSRC Site Policy Review Committee.

The **WSRC Site Off-the-Job Safety Subcommittee** reviews off-the-job injuries and off-the-job Quality Improvement/Safety Suggestions, and develops programs and procedures to improve off-the-job safety performance. The chair of this subcommittee is a Level 3 or 4 Manager.

A major vehicle for employee participation is the Safety Observer Program. Anyone may volunteer for this program which accepts employees at all levels. Extensive training is provided monthly over a period of one year. Volunteers are expected to attend at least eight of the monthly training sessions. Approximately 1,500 employees have completed the training. (Shortened training is being designed to allow more training and faster “graduation.”) When training is complete, safety observers take part in walkthroughs to inspect for safety and health hazards. Senior safety observers have monthly meetings where their safety and health education is continued. They do not conduct walkthroughs as often when they reach “senior” status. A number of ad hoc safety observer teams have been assembled to accomplish one-time tasks.

On a small scale, Environmental Safety, Health and Quality Assurance (ESH&QA) Division safety observers who were involved in a move were asked to analyze the potential hazards involved in the move and to plan for prevention or control of those hazards. The Vice President for ESH&QA said that the team came up with many things that had not occurred to anyone else and believes that accidents were avoided because of their work.

At a higher level, the WSRC President asked that a Safety Culture Task Team be formed of safety observers from all around the site to evaluate the safety culture and make recommendations for improvement. More than half the team were nonexempt employees. The team made 34 recommendations. Of these, about 19 were immediately accepted by management. One recommendation, that OS&HD report directly to the President, was denied. The rest were deferred for further study. Of the recommendations that were deferred, some required capital expenditures such as electronic message boards at each site barricade, and some required review against laws or corporate human resource policies, such as publicizing disciplinary actions taken as a result of safety incidents/infractions. Some of the recommendations which were accepted by

management also required expenditures such as the replacement of all safety signs with standard color and safety sticker development. The recommendations are being tracked and some that were deferred have been revisited. For example, the team decided that if placing message boards offsite was not cost effective, television monitors could be installed in each facility instead.

In addition to these formal methods of involvement, employees are involved in safety in other ways. The monthly safety meetings follow a schedule of topics that is decided at the site level. At the departmental level, there is great flexibility in how the topics will be presented. Various employees from different levels are asked to take responsibility for presentation.

On occasion, skits and other creative mechanisms are presented. Most workers also feel that they can have input into the procedures in their work packages. Some are involved in the development process and others have input after development but before implementation. Employee involvement shows a high degree of enthusiasm. If it continues its upward trend, it could become a model for others to emulate.

### **Recommendation**

Ensure that non-managerial employees have a substantial role in safety and health program policy, oversight, and evaluation decisions rather than limiting them to carrying ideas to a top managerial body for decisions. ~





## V. Worksite Analysis

Westinghouse Savannah River Company (WSRC) has in place a thorough and comprehensive worksite analysis program which identifies and corrects hazards. Through interviews, document reviews, and site walkarounds, the Teams verified that the system meets the requirements of the seven sub-elements of this tenet as follows.

### A. Pre-Use, Pre-Startup Analysis

WSRC has developed and implemented processes to ensure that each time equipment, materials, processes, or facilities are purchased or significantly modified, they are analyzed for hazards prior to use. A formal system is used in which the designer or design team, upon encountering a health, safety, or environmental issue, contacts the environment, safety and health (ES&H) staff so that the appropriate ES&H features will be incorporated into the new equipment or process. When a new process or modification is proposed, a Process Hazard Review is conducted. This review identifies and evaluates the hazards associated with WSRC operations.

To ensure the pre-use, pre-startup analysis is used, WSRC has developed procedure 51, “Final Acceptance Inspection of New, Altered or Discontinued Facilities or Equipment” (WSRC 8Q, *Employee Safety Manual*). The procedure establishes requirements to ensure that a final acceptance inspection is made before new or altered equipment and facilities are placed in service. The final inspection ensures all existing, new, or procured equipment, materials, facilities, or modifications comply with prescribed Occupational Safety and Health Administration (OSHA) standards. This procedure applies to personnel with responsibility for, or the need to use or occupy, any site facility or equipment that has been purchased, built, placed in service, modified, or discontinued. For example, the

WSRC Ergonomic Program plays a major role in the pre-use, pre-startup analysis. Information collected under this program is utilized in a variety of procurement, training, and safety processes.

The Review Teams also found that Preliminary Hazard Analyses are conducted for each phase of construction projects. The design review process evaluates new designs at various development stages. Comments are considered through the comment resolution process. Before a design is finalized, a Design Review Board (DRB) confirms that the record supports that the process was properly followed. The DRB consists of personnel independent of the project who review all aspects of the completed design for health and safety compliance. Environmental Safety, Health and Quality Assurance (ESH&QA) safety personnel are always involved with the DRB. When the reviews and construction are complete, a plan for the startup of the new or modified process or facility is developed. This plan is called the WSRC Operational Readiness Review (ORR) Process. A Readiness Self-Assessment is performed upon completion and approval of the restart/startup plan. WSRC personnel are aware that conditions and hazards can change frequently during construction activities. At a minimum, construction supervisors give safety task assignments to all construction employees on a daily basis. This consists of a safety review of hazards and precautions for the assigned tasks. Employee interviews verified that personnel are required and encouraged to seek additional safety direction as conditions change throughout the day.

WSRC meets the pre-use, pre-startup analysis DOE-VPP requirement. This was verified through numerous employee interviews, document reviews, and process/procedure verifications.

## B. Comprehensive Surveys

Comprehensive surveys for safety and health hazards are performed by the industrial hygiene and safety field representatives. Several field industrial hygiene positions are currently vacant. However, adequate coverage for industrial hygiene issues is provided through the coordination of the area organizations. During walkthroughs of Savannah River Site (SRS) facilities, there were no observations of employee exposure to any particular safety or health hazards. With respect to chemical agents and other airborne contaminants, the potential for hazardous exposures was found to be minimal due to process orientation, material use, material types, work practices, and engineering controls.

The Onsite Review Teams found the documentation of comprehensive survey results to be too formalized for industrial hygiene. The procedures for performing industrial hygiene surveys are contained in WSRC 4Q1.1, *Industrial Hygiene Manual*. The procedures reviewed were thorough and detailed. A similar level of detail for performing safety surveys was not evident in WSRC 8Q, *Employee Safety Manual*. This may account for some of the inconsistencies in machine guarding observed by the Onsite Review Teams. The comprehensive survey program is supplemented by the safety observer program and the use of management tours to continuously review safety and health conditions and practices.

Health hazard surveys have been performed sitewide for noise, asbestos, solvents, and a wide variety of chemical agents. Chemical monitoring appears to have been conducted for the extensive array of chemical compounds present at WSRC. Potential contaminants include lead, cadmium, other toxic metals, benzene, organic solvents, and asbestos. Sample collection and analysis have been conducted using accepted practices. The majority of chemical analysis has been performed by the American Industrial Hygiene Association accredited laboratory maintained by WSRC. Other analytical services outside the range of the WSRC laboratory are

performed by an outside contract laboratory. With the exception of some direct monitoring instruments for confined space entry evaluations, most of the industrial hygiene sampling is performed by WSRC Industrial Hygiene Technicians. Sampling strategies, documentation, and laboratory analysis are reviewed and approved by professional industrial hygiene staff at WSRC. To help meet the requirements for a comprehensive monitoring program, employee exposures with regard to maintenance/repair activities have to be included to assure adequate characterization of employee exposures in all areas of WSRC operations.

## C. Routine Hazard Assessments (Self-Inspections)

WSRC has several systems in place for conducting routine inspections of its facilities. Inspections are conducted monthly and cover the entire site quarterly. Construction sites are inspected weekly by BSRI representatives. WSRC 8Q, *Employee Safety Manual*, procedure 6, "Safety and Housekeeping Audits," outlines requirements and responsibilities for line organizations in the conduct of self-inspections. Inspections are divided into four categories:

- Senior Management Safety and Housekeeping Audits,
- Manager/Supervisor Audits,
- Departmental Housekeeping Audits, and
- Special Audits.

Senior level managers (Vice Presidents) of each division conduct quarterly housekeeping audits. Areas being audited are primarily rated for their housekeeping. These managers conduct audits of facilities that are not under their direct line responsibility. The managers are accompanied by area safety engineers, facility managers, area safety observers, and nonexempt employees from the area being audited. Departments receiving an exceptional rating may fly a flag in recognition of their accomplishment.

Manager/supervisor audits are performed on a varied schedule to maintain safety surveillance of the employees and work areas. The frequency of these audits is weekly inspections by first-line supervisors, monthly inspections by department managers, and quarterly inspections by the division managers.

Departmental housekeeping audits are conducted by department managers of areas directly under their purview. Some departments have chosen to subdivide into zones, and individuals within the department are given monthly audit responsibilities for certain zones. Audit/inspection schedules are typically developed ahead of time to accommodate the auditor's calendar. Some departments have developed a schedule for the entire calendar year while others schedule for the current quarter only.

Some audits conducted by area and site subcommittees, and by the occupational safety and health experts are deemed to be special audits. These include audits of specialized areas, such as inspection of grounding of trailers and inspection of cranes.

Results of audits/self-inspections are entered into databases developed and maintained by individual departments. Unsafe acts and unsafe conditions, housekeeping deficiencies, and procedure violations are identified and documented for corrective actions. Hazards are tracked to completion by the facility managers responsible for the areas being audited.

In addition, SRS facilities periodically undergo a vigorous independent self-assessment by the Facility Evaluation Board (FEB), which is composed of WSRC personnel with extensive field experience and in-depth technical competence in selected fields, and who are trained in performance-based assessment techniques. The independent assessments evaluate the status of functional areas as well as validate the effectiveness of the self-assessment programs.

Based on the review of documentation; walkthroughs of the facilities; and interviews

with senior level managers, department managers, supervisors, safety observers, and hourly employees, the Onsite Review Teams concluded that WSRC has a comprehensive program that meets DOE-VPP requirements for self-inspections.

## **D. Routine Hazard Analyses**

Initially, routine hazard analysis for WSRC and Bechtel Savannah River, Inc. (BSRI) relied mainly on Work Clearance Permits (WCPs). The procedure for WCPs is found in WSRC 8Q, *Employee Safety Manual*, procedure 35, "Work Clearance and Authorization." The procedure was revised in April 1996, "following identification of recurring problems concerning deficiencies in the Work Control process, specifically related to communication of hazards associated with authorized and performed work using work clearance permits. Site lessons learned Directive 96-1 was issued (February 21, 1996) to expedite preparation and completion of training in this area." Expedited training was completed by June 30, 1996, for over 5,000 personnel.

Extensive interviews with WSRC personnel revealed that portions of the work package for a particular task contain stepwise procedures for a task, and this procedure is used to identify hazards and controls that are listed on the WCP. The initiator of the work package is often highly experienced in the work to be performed. The initiator determines when the level of hazard involved in a task is appropriate to call in industrial hygiene, radiation protection, and/or safety to review the WCP.

When the site decided to pursue DOE-VPP, they recognized a deficiency in the area of job hazard analysis (JHA) requirements. A Special Emphasis Team was formed to implement a pilot (JHA) program in H-Area. The HB-Line evaluated all their tasks, prioritized the most hazardous tasks, and had employees and supervisors working together to accomplish the analysis. During the initial onsite review, the Team found that JHA's were not conducted

sitewide. Based on their 90-day action item recommendation, WSRC prepared a site-wide JHA Procedure 8Q-38, “Job Hazard Analysis Program,” and communicated the requirements for JHAs across the complex. This procedure also requires “personnel participating in the JHA process to understand the requirements of the procedure and to be able to recognize hazards associated with the task being evaluated,” and to go through formal training. The prioritization methodology for selecting jobs for JHA’s was found to be thorough, especially with regard to the link to the near-miss trending data developed for the trending 90-day item.

The Update Team found that Central Services Works Engineering conducted several JHAs based on the JHA procedure. Likewise, the Team found several departments conducted JHAs based on the risks associated in their departments. Significant improvements were made by WSRC in the JHA process since the initial evaluation. In addition to JHAs, ergonomic evaluations are also conducted when a request is submitted to the safety department from medical, a supervisor/manager, or an employee. The safety department reviews medical records to determine possible ergonomic concerns. Design reviews include human factors engineering and the evaluation of hardware systems.

The Update Team determined that the WSRC programs meet the DOE-VPP’s JHA requirement. Additionally, the occupational safety and health field support procedure establishes minimum requirements and provides guidance to the Occupational Safety and Health Department when assisting line organizations in conducting a JHA.

## **E. Employee Reports of Hazards**

Employees interviewed indicated that they were strongly encouraged by line management to report any safety and health concerns at any time, without fear of reprisal. Employees are

empowered to stop an unsafe work activity at any time.

Employees can report safety and health concerns in many ways. The most widely used method of reporting unsafe conditions or acts is by bringing the condition or act to the attention of their immediate supervisor instead of using one of the six formal programs. If the employee wishes to remain anonymous, he or she can use several telephone hotlines. When reporting by hotline, callers select a personal identification number and can check on the status of the response to their concern using this number. The Review Teams found evidence that six systems are in place for reporting hazards or safety and health concerns:

- Contacting any ES&H department member, ES&H representative, or line manager, including a supervisor.
- Reporting a safety or health concern to the WSRC/BSRI Employee Concerns Program Hotline. A response and report are generated for all calls, including anonymous ones.
- Reporting a safety or health concern to the Department of Energy - Savannah River Employee Concerns Program Hotline.
- Recording a safety deficiency on the safety log in certain sites or a workplace evaluation form at the Tritium Facility.
- Completing a Green Card and presenting it to a supervisor.
- Submitting a safety suggestion. A safety suggestion is encouraged by the Quality Improvement Suggestion System. After the suggestion is implemented, the suggester receives a monetary award.

Employees interviewed said they were very satisfied with the hazard reporting systems available to them and that management was very responsive in correcting hazards. A FoxPro database for tracking WSRC employee concerns has been in place for several years. All valid concerns are investigated, formally tracked on a

monthly basis, trended, and reported at ES&H committee meetings.

## F. Accident Investigations

The accident investigation system is formalized with appropriate documentation maintained. The accident investigation program relating to construction is primarily the responsibility of the Field Operations safety and health staff and supervisory personnel. Through the procedure requirements of Construction Management Procedure CMP 01-1.2-2, employees have limited input into the accident investigation process. Type C investigations are initiated for any OSHA 200 recordable case, and, when warranted, for “near miss” events. Construction-related “near miss” events are defined differently from non-construction related activities at WSRC. This difference in “near miss” definitions could create inconsistencies in trending results when the site begins to analyze these cases.

Accident investigations are conducted according to existing procedure. Generally, the investigation is performed by a safety and health field representative with some assistance from the injured employee(s) and the immediate supervisor. Safety committee members, safety observers, or other employees do not participate in the proceduralized process.

Team member reviews of WSRC/Bechtel written accident reports; and interviews with employees who had been directly involved in an accident, the investigation, and corrective actions reveal that WSRC could strengthen its existing accident investigation system. The Bechtel Accident Review Board is a model of excellence that WSRC would benefit from emulating, especially the process used by Bechtel to assure that every contributory factor to an accident is investigated and controlled. However, recurrence control would be further strengthened by a formalized mechanism to ensure that procedures, WCPs, and training are reviewed and revised as appropriate in response to identified root causes.

The review of WSRC accident reports and interviews with the employee revealed cases where the information in the “Accident Causes” and “Corrective Actions” sections of the reports was incomplete, inconsistent with information obtained in interviews, and did not accurately reflect appropriate root causes. The overall strength of the safety and health program at the site contributes to a low accident rate which means that accident investigations are, fortunately, not conducted often. The site must ensure that although accident investigations are not conducted frequently, every one is conducted thoroughly and accurately, and root causes are properly identified.

Root causes are a particular concern because, in the reports sampled, every one listed the employee as causing the accident by condition, action, or influencing factor. Some listed the employee in all three areas. None of the reports cited causes from incorrect hazard analyses, improper use of equipment, schedule pressures, inadequate procedures, or other systems/management-related causes determined during interviews.

An additional concern revealed by the interviews is that none of the employees had seen the final report of the accident investigation. Several stated that the information contained in the accident cause section of the report was not accurate.

Very positive aspects of the accident investigation process are the corrective actions taken to prevent recurrence. Interviews determined that all corrective actions on the reports were completed. Injured employees confirmed that the accidents were reviewed in tool box meetings and safety meetings, and lessons learned documents were issued. The injured employee often participated in the tool box or safety meetings. However, as the reports state and interviews confirmed, many of the corrective actions are relayed verbally with no alterations to written procedures or hazard analyses. Consequently, the correction is

effective only as long as those who heard it can remember it.

The investigation of incidents (near misses) should also be strengthened. The “Reporting, Responding, Investigation and Recording of Occupational Injury/Illness or Near Miss” procedure 8Q-18, dated September 30, 1996, states that the Occupational Safety and Health Department (OS&HD) is responsible for requesting supervision to investigate near misses. Interviews indicated that often OS&HD is unaware of near misses because a supervisor does not report them. Some supervisors refuse to comply with OS&HD’s requests for investigating a near miss because they say the incident does not meet the definition of a near miss in the procedure, it will cost too much money to conduct an investigation, or they do not want to be perceived as “guilty” for having a near miss occur under their responsibility.

The site is missing a valuable resource by not avidly pursuing incidents (near misses) as an indicator of possible weaknesses in the site’s hazard management system. There are effective incident (near miss) tracking and trending systems in certain areas onsite that would serve as a model for the development of a site-wide program.

The site-wide Lessons Learned Program evaluates a myriad of data and serves as a way to disseminate pertinent information on hazards and corrective actions to employees who may be affected. The information is disseminated via hard copy to several groups throughout the site, including members of the Lessons Learned Committees in each area. The information is additionally available on WSRC’s SHRINE Internet site.

The investigation of accidents and incidents can be improved by:

- Training or retraining investigators in root cause analysis,
- Demonstrating that accident investigations fully consider the possibility of management

system error or defect as a cause of the accident,

- Ensuring that the injured employee and the direct supervisor review and approve the final version of the accident report, and
- Using Bechtel’s Accident Review Board as a model for site-wide implementation by all contractors.

## G. Trend Analysis

WSRC and Bechtel have an outstanding system for conducting trend analyses of recordable injuries and illnesses, lost workday cases, and medical treatment cases (treatment beyond first aid without lost or restricted work activity). Injury/illness data is compared to goals, evaluated through statistical process control methods, analyzed by a cost index comparison, and thoroughly evaluated by many categories, including the responsible managers. The system is devised so that on any day a person can extract data by area, department, organization code, manager, supervisor, or individual. Injury/illness trending is done for all service subcontractors.

In addition to injury/illness data, trending is done by the safety department on skin contamination cases, workers’ compensation costs, trends during reduction-in-force periods, and how SRS compares in DOE data collected by the Occurrence Reporting and Processing System (ORPS). Data is also trended from off-the-job injuries to determine if special emphasis training is needed.

The data are formally provided monthly to the members of the Site Central Safety Committee and reviewed by WSRC’s President at the bimonthly meetings. If the safety department analyst notices that data is exceeding control limits or there is a developing concentration of data for one area, such as knife-related injuries, notices are delivered by e-mail to the affected managers. Interviews confirmed that a manager’s performance with injury/illness data is

used to formulate goals for improving performance in safety and health.

The only trending data provided on first aid cases is a gross annual comparison of the number of first aid, lost workday, and medical treatment cases and is included as a data point in a ranking of the top four on-the-job injuries by body part.

The site collects, in various individual systems, the data needed to meet all of the DOE-VPP requirements for trend analyses. Near misses, inspection or self-assessment reports, and employee reports of hazards should, at a minimum, be added to the site-wide trend analysis program. ~





## VI. Hazard Prevention and Control

The hazards identified through Westinghouse Savannah River Company's (WSRC) worksite analysis process are eliminated or mitigated through effective implementation of controls. The following sections explain the methods of hazard prevention and control used by WSRC in meeting the requirements for this program element.

### A. Access to Certified Professionals

The WSRC occupational safety and health and quality assurance program is adequately staffed to provide the professional expertise and support necessary for the contractor to conduct its operations safely and responsibly. These professionals are available through the field, operations, and program organizations within the Environmental Safety, Health and Quality Assurance (ESH&QA) Division at WSRC.

A significant number of the professionals on the staff at WSRC hold credentials such as Certified Industrial Hygienist (CIH), Certified Health Physicist (CHP), and Certified Safety Professional (CSP). Additionally, for construction-related operations, several individuals hold certified Occupational Safety and Health Technologist (OSHT) designations through the American Board of Industrial Hygiene. A limited number of individuals with advanced degrees also provide additional capability in areas such as ergonomics.

### B. Methods of Hazard Control

Facility walkthroughs conducted by Review Team members substantiated the WSRC approach to the required hierarchy of hazard prevention and control measures.

As a requirement of the industrial hygiene program, a process or material substitution to

reduce potential hazards has been embraced through efforts to reduce costs associated with waste chemical/material disposal. Therefore, waste minimization efforts are helping to drive decision making for material substitution. One application of substitution methods observed involved the recent purchase of carbon dioxide-bead blasting capability for enhancing radiological decontamination of materials. Additionally, chemical use and inventories are well managed through the Chemical Control Program (CCP).

The preference for engineering controls was evident at WSRC. Production facilities, maintenance areas, and research laboratories all contained examples of built-in protective methods. Generally, any process or operation that evolves dusts, fumes, or smoke has been linked to local exhaust ventilation systems. These ventilation systems were observed to be in good working condition, with appropriate levels of maintenance and repair. With regard to research laboratories, all work with hazardous materials is performed inside laboratory hoods, which provide partial enclosure of hazards in addition to exhaust of vapors and gases. A program exists for performance testing all laboratory hoods to ensure adequate airflow and distribution.

The work control program (WCP) system provides a systematic administrative-type approach to anticipating and controlling hazards for work performed at WSRC. The WCP provides an initial screening tool to identify hazards from the work process or the surrounding areas. The WCP provides recommendations for personal protective equipment and additional control methods or WSRC procedures, as applicable. Permit systems also exist for confined space entry and asbestos work. Generally, WCP screening is performed by the responsible supervisor, with review performed by the area safety engineer or industrial hygienist, prior to approval.

## C. Positive Reinforcement

WSRC has re-engineered the Total Quality recognition program to recognize and honor individuals and teams who achieve exemplary performance in the categories of Safety, Disciplined Operations, Cost Effectiveness, and Continuous Improvement. This program positively reinforces the Total Quality of Excellence, which supports the four main categories listed above. The programs that recognize achievements are:

- Vice President/President Awards
- Informal Awards
- George Washington Signature Awards
- Westinghouse Award for Service Excellence

Informal awards are used to recognize and show appreciation for employee achievement that is written in their expected job scope. This program focuses on those individuals who are “doing the right things.”

### George Washington Signature Award

This is a corporate-wide recognition program sponsored by the Engineering and Manufacturing Advisory Council. It honors distinctive achievement in promoting high standards of excellence by individuals and groups related to engineering and manufacturing excellence. The awards program is conducted yearly.

### Westinghouse Award for Service Excellence

This award is a corporate-wide recognition program that focuses on the Westinghouse commitment to service. The program is designed to recognize employees who make contributions to service businesses and to motivate employees to performance excellence by identifying role models.

Positive reinforcement is visible through the formal and informal health and safety reward and recognition systems.

## D. Disciplinary System

A condition of employment at the site is to follow WSRC’s established rules of proper conduct. Employees involved in any violation of the rules of conduct, or who fail to perform their jobs in a safe and satisfactory manner in conformance with site safety rules, are subject to disciplinary action. Disciplinary action can range from informal contact up to and including termination of employment, provided the employee has been advised of identified shortcomings and given the opportunity to improve performance. Acts of misconduct and willful violation of established policies or procedures, however, may not require a warning to the employee if the matter is deemed sufficiently serious to warrant immediate termination.

The policy for WSRC and Bechtel Savannah River, Inc. (BSRI) non-union employees is detailed in WSRC 5B, *HR Policies, Practices, and Procedures*, policy 1.16, “Employee Discipline.” BSRI bargaining-unit employees, represented by 14 separate building trade unions, are expected to abide by all site safety and code of conduct rules and procedures. In addition, BSRI bargaining-unit employees are subject to the disciplinary language contained in their respective bargaining agreements. Both disciplinary systems are similar and use a review committee or board composed of appropriate representatives to review and act on serious disciplinary matters.

Employee interviews and a review of documents, including logs of disciplinary action taken, indicated that employee discipline is applied fairly and consistently to all employees. Further, there is evidence that an effective system of positive reinforcement exists for following site rules and procedures and using good work practices. Employees are cognizant of and understand both the positive reinforcement and disciplinary systems.

## E. Preventive Maintenance

The preventive maintenance (PM) program at WSRC is managed using the Work Management System (WMS), which is a site-wide computerized system for tracking, monitoring, and measuring the effectiveness of maintenance work. WMS includes equipment data, work order data, preventive maintenance program data, and reporting capabilities. Any authorized employee who has access to the WMS database can enter a work order request. This system maintains information on the status of non-programmed (reactive) work orders and generates weekly work orders for programmed PM items.

The network runs every week and generates work orders for PM purposes. Each item on the PM schedule has an Integrated Data Processing number, and the PM history for each item can be obtained from the database. PM is performed by either an assigned work group from the area within Savannah River Site (SRS) responsible for the particular piece of equipment or by the maintenance group within the Central Services Works Engineering Department. Work Control Groups (WCGs) are comprised of planners, schedulers, mechanics, and electricians that have the maintenance responsibilities. WCGs coordinate their maintenance activities with the custodian for a piece of equipment prior to beginning any maintenance activity. WMS is capable of producing reports of schedules for forthcoming PM activities; PM reports on the pieces of equipment that are active; and reports on PM items that are delinquent. Each piece of equipment has a specified delinquency date. If PM activity is not performed on its scheduled date and exceeds 25 percent of its scheduled frequency time period, a delinquency entry results in the database.

WSRC recently modified the capabilities of WMS to generate a Workload/Backlog Performance Indicator Report that displays data on all maintenance work orders, including those awaiting planning, parts, engineering evaluations, funding approvals, or appropriate plant

conditions. This report provides data that can be used to determine trends in corrective and preventive maintenance work for work groups, departments, and areas. Random samples of PM delinquency reports and interviews with work control groups revealed a zero delinquency backlog for those areas examined. However, based on a review of the Workload/Backlog Performance Indicators Report for the entire site, the Review Teams found that there are several hundred backlog items for the entire site exceeding the 90-day delinquency criterion. Some of these have been delinquent for up to two years. To maintain consistency in the PM program, the Teams recommend that both managers and work control groups responsible for maintenance activities be held accountable for more effectively managing their PM programs to preclude backlog buildup.

## F. Emergency Preparedness and Response

The WSRC emergency plan is comprehensive, well organized, and current. The plan consists of 14 sections that provide a detailed overview of the site's emergency management program. Additionally, the plan includes annex sections which contain the necessary information pursuant to the specific implementation of the WSRC Emergency Plan for each independent facility. The annex sections include a detailed facility description, hazard assessment information, lines of authority for emergency organizations and response personnel, and training requirements for emergency responders.

The WSRC Emergency Operations Center (EOC) is state-of-the-art and centrally located in Area A at the Savannah River Site Operations Center (SRSOC). This center is well equipped with communications equipment, including videoconferencing, computer support, and access to meteorological data. Approximately 300 employees are currently involved in emergency preparedness and response, with a "three-deep"

back-up system of on-call personnel to insure their availability in the event of an emergency. The SRSOC is staffed with five employees (representing fire dispatch, emergency duty, communications, security, and law enforcement) 24 hours a day, year round. Any call to 33911 goes directly to this center for appropriate action.

The WSRC fire department is well-equipped, trained, and operates under a 24-hour shift schedule, with three fire stations manned by certified firefighters, emergency medical personnel, and line officers. The fire department has approximately 87 firefighters with a minimum of 14 on duty at all times. Each receives a minimum of 20 hours of training per month to maintain firefighting certification.

Among the firefighters and officers are members of the WSRC Hazardous Materials Response Team and Rescue Team. These teams are responsible and well trained for rescues of all types and also assist local emergency response personnel with offsite incidents. Team members are trained to the hazardous materials technician level. An onsite training center provides the location and facilities to maintain rigorous training for site response personnel. Mutual aid agreements have been established with surrounding community fire departments and emergency organizations. Additionally, local hospitals are prepared to receive victims from the site, and the possibility of treating chemically or radiologically contaminated victims has been addressed. Fire department personnel also perform routine activities and inspections according to National Fire Protection Codes and Standards. These include inspections of all site facilities, recommendations for fire protection improvements, and surveillance and testing of all fire suppression and detection systems and equipment.

The fire department is supported by a fleet of approximately 20 vehicles, including three ambulances, six pumpers, one pumper-tanker, one tanker, one aerial platform ladder truck, one light duty rescue vehicle, one hazardous materials (HAZMAT) truck, one rescue truck,

and two boats for waterway spill response and control. Wackenhut Services, Inc. (WSI), an independent contractor, is prepared to assist with helicopter transport of seriously injured victims, as necessary.

Security services for the site are provided by WSI. Physical security and access control measures vary by area, primarily depending on quantities and types of nuclear material contained therein. A challenge system has been established and is taught to all onsite personnel. Security policy requires that all cleared and uncleared employees are responsible for “reporting security incidents involving unescorted, uncleared, or insufficiently cleared personnel to the appropriate Area Security Representative, or a WSI Protective Force representative.” Training is provided to all onsite personnel on recognition and response to potential security emergencies such as bomb threats and receipt of suspicious packages. WSRC is well prepared to respond to all likely types of emergencies, both natural and man-made, including fire, radiological, tornado, and terrorist activities.

A Job Performance Aid (JPA) Program has been established to provide a ready source of information to ensure that all employees, subcontractor personnel, consultants, and visitors can respond quickly and correctly to hazardous or emergency situations. JPAs are small, easily folded cards, specific for each facility, that contain detailed information on the facility, emergency alarms, hazardous chemical ratings, radiological control limits, material safety data sheet (MSDS) locations, spill action and fire extinguisher use, escort policy, location of assembly or “rally” points, and buildings designated as emergency shelters. Facility-specific JPAs are carried by most employees and visitors while onsite. Additionally, all emergencies are announced through a plant-wide public-address system, and a personnel accountability system based on the badge system and bar code reading has been established to ensure the evacuation of all personnel in the event of an emergency.

Numerous drills involving all anticipated, potential scenarios are routinely conducted throughout the site, including site evacuation, chemical spills, line breakage, radiological incidents, tornadoes, and fire. An extensive, full-participation exercise drill with mass casualties is also conducted at the site at least annually. Upon arrival at an incident, response department personnel are met by designate facility personnel, including radiological control personnel in the event of potential radiological hazards, who have detailed knowledge and information relevant to the specific facility hazards. It is evident from the documentation reviewed and employee interviews that emergency drills are conducted frequently and critiqued, and improvements are implemented, as appropriate. It is further evident that the current emergency preparedness system and EOC has been in place and operating effectively since 1990.

## **G. Medical Programs**

The site medical department has six onsite facilities staffed by nine physicians, 21 registered nurses, and 31 ancillary medical personnel (laboratory, radiology, medical records, substance abuse, etc.). The H-Area medical facility is open 7 days a week, 24 hours a day with a registered nurse available during off-hours and weekends. Physicians are available during normal business hours, Monday through Friday, with on-call availability during nights, weekends, and holidays.

There were 36,037 visits to the medical facilities in 1996. Of these visits, 3,280 were for surveillance examinations. The site medical department conducts surveillance programs according to Occupational Safety and Health Administration (OSHA) standard requirements and Department of Energy (DOE) requirements. Surveillance examinations are provided for asbestos abatement, benzene exposure, D.O.T. drivers, hazardous material workers, hearing conservation, laser workers, lead surveillance, liquid effluent treatment workers, personal

security assurance, respiratory protection clearance, and special vision testing.

Medical records of the site medical department, as sampled by the Review Teams, were clear and complete. Interviews with site medical department personnel revealed that there is case management by the site medical department and by Wausau Insurance, the Workers' Compensation carrier. This oversight of the cases occurs until resolution of the individual cases, although resolution may not occur in the same manner for each case. In some cases, a site medical department physician may treat the patient until resolution of the case, while in others the patient is referred to a specialist or primary physician for treatment until the patient is able to return to the site medical department for return to duty evaluation.

Evidence shows that the emergency medical responders have at least cardiopulmonary resuscitation (CPR) certification along with first aid certification. The site has four ambulances that are assigned to three areas, with one used as a backup. At least one paramedic with advanced life support capabilities is assigned to each ambulance. Response teams are onsite 24 hours a day. Additionally, all fire department personnel are CPR and first aid certified, all electrical and instrumentation personnel are CPR certified, and other WSRC workers are CPR certified as well.

The physicians maintain a log of worksite visits in their assigned work areas. Most of these are focused visits based on requests regarding a worksite or for information to be used in accommodating workers with impairments. There is evidence that at least one physician has been involved in what his site area calls a comprehensive survey. Physicians are not routinely involved in accident investigation, facility evaluation board investigation, job hazard analysis, process safety analysis, or ergonomic survey site visits. The physicians are invited, especially when their expertise is needed, to participate in job hazard analysis and facility

evaluation board investigations and do so as their schedules permit.

The site medical department is not responsible for the OSHA log. The safety department is responsible for maintaining the OSHA log and receives information from the site medical department regarding medical care and limitations of injured workers. The safety department then performs trend analyses on this information.

The Safety and Health Programs Department and the site medical department are in the same division. There are weekly meetings of the safety department managers which the medical director attends. Evidence exists that there is cooperation between the site medical, safety, industrial hygiene, and health physics departments. On a site area level, there is evidence that physicians attend the area safety committee meetings.

An effective medical program exists at WSRC. It appears that not all of the Department of Energy Voluntary Protection Program (DOE-VPP) medical program requirements are being complied with by the site medical department. The reason for this is that some of the DOE-VPP medical program requirements are carried out by other departments, e.g., ergonomic surveys and emergency response. There is input into these programs from the site medical department. Some concern was noted about communications with regard to OSHA log keeping. Recently though, meetings to improve these communications have been held.

### Recommendation

Increase physician involvement in job analysis projects, the ergonomics program, and formal accident investigations when needed, and improve documentation of participation in these activities.

## H. Radiation Protection

Implementation of the WSRC Radiological Protection Program was evaluated at the following selected facilities:

- H Canyon and HB Line
- F Canyon and FB Line
- H Tank Farm
- Defense Waste Processing Facility (DWPF)
- Tritium Facility
- K Reactor
- Receiving Basin for Offsite Fuel (RBOF)
- Savannah River Technical Center (SRTC)

The ESH&QA Division is responsible for the implementation of the radiological protection program at WSRC. The operational and support aspects of the program are functionally located in separate departments within ESH&QA.

The Safety and Health Operations Department has a staff of 601 with over 90 percent associated with operational radiation protection. (The remaining staff provides industrial hygiene and safety support.) The department dedicates resources to seven functional areas: Spent Fuel Storage; Nuclear Materials Stabilization & Storage; High Level Waste; Solid Waste Disposal Facility; SRTC/Administration & Infrastructure Division/Technical Services; Projects, Engineering & Construction/Environmental Restoration; and Defense Programs (Tritium).

The Safety and Health Programs Department has a staff of 80 and provides sitewide support for external dosimetry; internal dosimetry, which includes both bioassay and dose assessment; technical support; and calibration services. Additional resources in this department provide sitewide technical support for industrial hygiene and safety.

The site As Low As Reasonably Achievable (ALARA) Committee, chaired by the WSRC Executive Vice President, prepares both

ALARA goals and a radiological improvement plan annually. The purpose of the radiological improvement plan is to address program weaknesses which may have been identified through self-assessments, FEB audits, and external assessments. Both site-wide commitments and organization-specific commitments are made to improve radiological control activities at WSRC. A review of the 1996 “Savannah River Site ALARA Goals and Radiological Improvement Plan” and the 1997 “WSRC Radiological Improvement Plan and ALARA Goals” indicates that WSRC sets aggressive site- and facility-specific ALARA goals which include the control of individual exposures; personnel contaminations; and reductions (rollbacks) in contamination areas, high contamination areas, and airborne radioactivity areas. The average worker dose in 1996 was 19 mrem and the highest recorded dose was 1,399 mrem (FB Line). Although some hands-on work in the HB and FB lines and other areas continue, all extremity exposures are maintained a factor of 10 below the regulatory limits.

A review of selected procedures and tours of the facilities indicated that the facilities maintain positive control of high radiation and very high radiation areas. The Initial Team did identify a problem at H Canyon where a change in location of the high radiation area keys had not been properly reflected in the procedures. Facility operations personnel indicated that steps would be taken immediately to update the procedure.

Interviews with radiological control personnel and workers indicate that personnel are cognizant of radiological work conditions, are held accountable, take pride in their work, and take a cautious attitude towards radiation and contamination. The Teams observed that proper housekeeping was being observed; radiological postings were appropriate, understandable, and current; instrument calibrations were current; and personnel performed proper radiological control practices. Work is controlled through the use of Radiation Work Permits which specify the type of work allowed and the level of

personal protective equipment required. The issuance of respiratory protective equipment is controlled based upon an individual’s training and qualifications, and the use of locked containers for the collection of used respiratory equipment to prevent unauthorized reuse is deemed excellent.

Raytheon performs radiography nondestructive testing (NDT) as a subcontractor to BSRI. WSRC provides the external dosimetry, bioassay, and instrument calibration services for Raytheon; however, Raytheon provides their own radiological coverage for NDT operations. WSRC has a program for the qualification of Radiological Control Technicians (RCTs), but the Teams could find no evidence that the site has reviewed the training and qualifications of the Raytheon RCTs. The Teams saw no indications that the Raytheon RCTs were not performing work in a safe manner. It is recommended that the WSRC ensure that all subcontractors who provide their own radiological coverage be held to the same level of training and qualifications as site RCTs.

An effective radiological control program exists at WSRC and has been appropriately integrated into both emergency response and the medical department. The medical department has the capability of handling contaminated wounds and providing chelation therapy when indicated. There appears to be adequate levels of support for personnel resources and equipment to maintain an effective radiological control program, and intradepartmental communications are adequate to resolve radiological concerns.

## I. Tracking Systems

WSRC has a variety of hazard tracking systems to collect data on self-assessments/inspections, employee reports of hazards, and accident/incident investigations that are consistent with DOE-VPP requirements. There is no central system to collect the data except for injuries/illnesses. All the other systems are decentralized to each area and in some areas down to a facility or department.

Some examples of the various hazard tracking systems are:

- Spent Fuel Storage Division Fire/Safety Inspection Report,
- Master Tracking System,
- Commitment Management System,
- Self-Assessment Requirements Card,
- Central Services Works Engineering Safety Audit Program,
- Commitment Tracking System, and
- Zero Accident Protection Process.

BSRI does not have as formal a system for hazard tracking as WSRS. Each of the five area safety representatives maintains their own records of the Formal Safety Assessments, Informal Safety Inspections, Other-Than-Serious-Conditions, and Management Safety/Housekeeping Audits. The five area safety representatives meet monthly with BSRI senior management to discuss possible crosscutting issues.

The Review Teams recommend that oversight be conducted for all of the hazard tracking systems annually to ensure all hazard tracking systems are functioning and hazard correction tracking is clear and easy to follow from identification of the hazard to completion of corrective action. ~



## VII. Safety and Health Training

Westinghouse Savannah River Company (WSRC) has a comprehensive safety and health training program that is effective in assuring employees are receiving general, regulatory, maintenance, and job-specific training. Beginning in early 1991, WSRC began to consolidate training in an effort to eliminate redundant training being conducted by organizational divisions. Since May 1995, all training in the categories of general, regulatory, or maintenance has been consolidated within the Site Training Department. Job-specific training remains the responsibility of each organizational division. There is a cooperative effort to clearly distinguish between the training provided by the Site Training Department and that provided by an organizational division. The elimination of redundant training has allowed reassignment or elimination of approximately 90 full-time equivalents without compromising quality or effectiveness of the safety and health program. Information provided in this section was gathered through interviews with managers of both organizational divisions and the Site Training Department; a sampling of WSRC employee training records; and interviews with line organization supervisors and their direct report employees. The program meets all Department of Energy Voluntary Protection Program (DOE-VPP) technical requirements. The information obtained from employee interviews did not identify any concerns with the process by which safety and health training is provided at WSRC.

A review of some course outlines revealed that course content provides employees with the tools needed to recognize and identify hazards, e.g., industrial, chemical, and radiological. Before employees are allowed to undertake any task at WSRC, supervisors are required to ensure that (1) appropriate training requirements have been met, and (2) employees are cognizant of hazards associated with assigned tasks. Supervisors interviewed demonstrated extensive knowledge of specific job hazards and believed they were

effectively informing their employees through hands-on training and weekly or daily tool box safety meetings. All employees interviewed acknowledged an understanding of the hazards encountered in their daily activities and demonstrated detailed knowledge of requirements and procedures on the use of personal protective equipment (PPE), including the location and process for issuance of PPE. Employees commented favorably on the maintenance of PPE and appeared knowledgeable on its limitations, use, and care.

WSRC managers are assigned a training coordinator who has direct responsibility for their division/department's training activities. Training coordinators are responsible for ensuring employees are notified of recurring training and scheduling individual or block training with the Site Training Department in accordance with the employee training plan. The Site Training Department staff demonstrated a genuine interest in providing quality training and possesses excellent credentials/training experience. A walkdown of selected courses revealed well-developed lesson plans, training aids, and adherence to the goals/objectives established for the respective course. The Site Training Department prepares/publishes the "Site Training Department's Safety Program," an annual plan delineating department goals/objectives, core values, rules of conduct, general safety requirements, commitment, and pledge. Employees along with their respective supervisor/manager denote acceptance by formal signature. A signed copy is maintained by both.

Prior to performing work at WSRC, employees who expect to work 10 or more consecutive days onsite must complete the General Employee Training (GET) and receive job-specific training that would assist in performing the work safely. Supervisors are required to acknowledge that the employee has met those training requirements. WSRC employees are required to receive annual

training to confirm they are retaining the knowledge/skills learned in GET. The consolidated annual training (CAT) course was developed to serve this purpose. CAT provides employees with the annual and biennial regulatory training, e.g., electrical safety, OSHA rights and responsibilities, emergency preparedness, fire safety, and various other discipline-specific subjects. Employee interviews provided a range of opinions on general training. Most employees stated that the level and quality of training received was better than any previous training received through private sector employment. Given the procedures and systems onsite, employees felt the training was essential to working safely at WSRC. Site Training Department managers are interacting with organizational unit supervisors to improve training course content and to further eliminate unnecessary training. Organizational divisions that provide on-the-job training (OJT) are required to develop formal lesson plans, complete with learning objectives that identify the skills and knowledge for individuals to perform tasks safely. Personnel providing this training must be qualified as OJT trainers through the Site Training Department.

WSRC maintains an aggressive training program directed at enhancing managers' understanding of their safety and health training responsibilities. In addition to taking specific, general, regulatory, and site-specific courses, managers participate in the Site Policy Review Committee for establishing site safety and health policies including accountability, reviewing of accident/incident reports, trending, and corrective action completion. Interviews with senior level managers revealed that many had been in their current positions for a short time (one to four months). All were able to demonstrate competencies through prior training and/or experience to qualify under the "Marshall Plan" (a competency-based staffing process established to staff the new management team at WSRC). All managers acknowledged that they emphasize safety as their number one priority at safety meetings and through performance

evaluations. Recognizing that funding is on a downward trend, managers are focusing on ensuring that employee training is directed at performance enhancements and are limiting/eliminating non-job related training. The Safety and Health Programs Department issued on February 21, 1997, a draft manager's guide focused on programs/procedures in place to ensure worker safety and to assist them in understanding/fulfilling their responsibilities.

With the exception of the Defense Waste Processing Facility (DWPF), all official employee training documents at the WSRC are maintained with the Site Training Department. Records of all DWPF employees who receive general, regulatory, or maintenance training are forwarded to DWPF. Organizational departments are required to enter site-specific training taken by their employees into the WSRC computerized tracking system, known as Training Records and Information Network (TRAIN). It was not certain that all organizational divisions were consistently entering this data. It is imperative that this information be properly entered to ensure quality of data tracking/trending and to serve as a baseline for future budgetary considerations.

The Site Training Department has developed a draft procedure that will establish specific requirements for using TRAIN in planning, scheduling, and accomplishing recurring training.

Employees participate in training review committees as established by policy found in WSRC 4B, *Training and Qualifications Program Manual*. Additional employee involvement occurs during piloting of a new course or when major changes occur in an established course. Employees also participate in procedure changes for processes within their organizational division. For training provided by the Site Training Department, employees are requested to complete an evaluation sheet to comment on concerns/issues that could improve the course content. Instructors and their managers review their input and, in coordination

with organizational divisions, effect course modifications as appropriate.

A sampling of training records contained in TRAIN reflects that subcontractor management/employees are receiving the GET, CAT, and specific training, e.g., Rad Worker I and II, OSHA, and other regulatory training. A highly proactive effort was initiated in 1993 with development of the "Savannah River Site (SRS) OSHA Training Decision Flow Diagrams." The manual, a joint venture between the safety and training divisions, provided easy to use flow charts for employees requiring specific regulatory training. With WSRC now offering approximately 150 industrial safety courses, there appears to be a greater need to update/maintain this initial effort.

There is ample recognition that the current training being provided to employees is of high quality and is a contributor to the low injury rate at the site. A review of the trending data for the past three years suggests that root causes attributed to the lack of training are very low. In addition to trending of incidents attributed to training, the Site Training Department trends training costs, offsite training attendance/costs, student hours trained, number of individuals receiving training, and average training hours per individual. For the past two years, personnel from the Defense Nuclear Facilities Safety Board have formally recognized the quality of WSRC training. The January 1996 Department of Energy (DOE) Office of Oversight's report, "Independent Oversight Evaluation Of Environment, Safety, and Health Programs at the Savannah River Site," contains favorable comments on the WSRC training effort. Local safety and health organizations have also provided recognition to training courses developed by Site Training Department staff. Additionally, 17 facility-level training qualification programs were formally accredited by the DOE Nuclear Accreditation Board.

Nuclear safety training is provided to facility/plant personnel by conducting nuclear fundamentals courses and specific courses on

process operations. The training covers abnormal conditions, normal operations, and emergency conditions. The training program includes on-the-job training as well as requires the conduct of job performance measures. To further ensure the safety of the facility and the workers, drills are conducted on various casualty conditions. Self-study guides are used for maintaining awareness of facility technical specifications, basis for interim operations, limiting condition of operations, and technical specifications. Facility personnel are involved in a continuing training program. Interviewed personnel confirmed that their safety was of the utmost importance.

All individuals receive required facility-specific training at the tritium facility. The training includes personal safety and related facility hazards prior to being granted access to any facilities within the tritium complex. Annual re-examination is required to maintain facility access. Personnel training includes nuclear safety hazards as well as industrial safety concerns. This training is part of the continuing training program. ~



## VIII. General Assessment

### A. Safety and Health Conditions

The Review Teams conducted a number of walkthroughs that resulted in a consensus that the facilities and job sites were exceptionally well maintained. The four major construction hazards: fall, electrocution, caught-in, and struck-by, specified exceptional control. No noncompliance items were noted in these areas. Housekeeping was extraordinary throughout the site where walkthroughs were conducted. Specific areas observed were H tank farms, F tank farms, Construction Central Shops, building 704-N Fabrication Shop, building 717-A Machine Shop, building 722-4A Motor Shop, and building 749-A Machine Shop. Subcontractors are being well managed and, when necessary, support and oversight services are used.

Overall, the WSRC safety and health program was very impressive. Review of documents, site tours, and interviews revealed a proactive functional hazard control program. Site conditions were found to be excellent.

### B. Safety and Health Programs

The Department of Energy Voluntary Protection Program (DOE-VPP) Teams found the Westinghouse Savannah River Company (WSRC) safety and health program to be highly effective. While opportunities for improvement in employee involvement were identified, the overall program is comprehensive and well communicated. The Teams believe that given sufficient time, this program will achieve the highest levels of recognition. ~



## IX. Recommendation

It is the unanimous recommendation of the Department of Energy Voluntary Protection Program (DOE-VPP) Onsite Review Teams that the Westinghouse Savannah River Company be accepted into the U.S. Department of Energy Voluntary Protection Program at the MERIT level. ~





# Appendix I: DOE-VPP Initial Review Team for WSRC: February 24-March 7, 1997

Name/Affiliation	Specialty/Area(s) of Responsibility
<b>Bob Barber</b> DOE-HQ (EH-53)	<ul style="list-style-type: none"> <li>Team Leader</li> <li>Commitment, Responsibility, Line Accountability, Employee Involvement, Visible Management Involvement</li> </ul>
<b>Roy Gibbs</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Special Assistant</li> <li>Authority and Resources, Commitment, Employee Involvement</li> </ul>
<b>Peter J. Brown</b> DOL, OSHA, Voluntary Protection Program, Region III	<ul style="list-style-type: none"> <li>Sub-Team Leader</li> <li>Visible Management Involvement, Quantifiable Program Results</li> <li>Records Review, Injury and Illness Rates, Lost-Workday Incidence Rates, Employee Involvement, Line Accountability, Comprehensive Surveys</li> </ul>
<b>Bruce Breslau</b> DOE-HQ (EH-53)	<ul style="list-style-type: none"> <li>Sub-Team Leader</li> <li>Commitment, Responsibility, Visible Management Involvement, Employee Involvement, Nuclear Safety</li> </ul>
<b>Ron Eimer</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Records Review, Injury and Illness Rates, Lost-Workday Incidence Rates, Line Accountability, Self-Inspections, Preventive Maintenance</li> </ul>
<b>Bob Loesch</b> DOE-HQ (EH-52)	<ul style="list-style-type: none"> <li>Radiation Protection Program</li> </ul>
<b>Sanjeeva Kanth</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Self-Inspections, Preventive Maintenance, PSM, Pre-Use/Pre-Startup Analysis, Records Review, Injury and Illness Rates, Lost-Workday Incidence Rates, Line Accountability, Employee Involvement, Subcontractor Program</li> </ul>
<b>Nancy Hammond</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Accident Investigations, Trend Analyses, Job Hazard Analyses</li> </ul>
<b>Dan Marsick</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Employee Reports of Hazards, Site Orientation</li> </ul>
<b>Lynn Longino</b> Dow Chemical	<ul style="list-style-type: none"> <li>Responsibility, Subcontractor Programs, Disciplinary System, Commitment, Trend Analysis, Employee Involvement</li> </ul>
<b>Paul Linton</b> Newport News Shipbuilding	<ul style="list-style-type: none"> <li>Pre-Use, Pre-Startup Analysis, Positive Reinforcement, Employee Involvement</li> </ul>
<b>Bob Tabor</b> Fluor Daniel Fernald (Union)	<ul style="list-style-type: none"> <li>Employee Involvement</li> </ul>
<b>Paul Neeson</b> DOE Chicago Operations	<ul style="list-style-type: none"> <li>Radiation Protection Program</li> </ul>
<b>Clark Roberts</b> PNNL	<ul style="list-style-type: none"> <li>Comprehensive Surveys, Access to Certified Professionals, Methods of Hazard Control, Accident Investigations, Medical Programs</li> </ul>
<b>Peter Cucuz</b> Consultant	<ul style="list-style-type: none"> <li>Safety and Health Conditions, OSHA Compliance, Lockout/Tagout, Confined Space Entry, Electrical Safety</li> </ul>
<b>Peggy Richardson</b> Richardson Management Group	<ul style="list-style-type: none"> <li>Program Evaluation, Line Accountability, Employee Involvement, Responsibility, Commitment, Visible Management Involvement, Subcontractor Programs</li> </ul>
<b>Al Heins</b> OSHA/HRT	<ul style="list-style-type: none"> <li>Emergency Preparedness and Response, OSHA Compliance</li> </ul>
<b>Jay Greenberg</b> DOE Idaho Operations	<ul style="list-style-type: none"> <li>Hazard Tracking, Employee Reports of Hazards, Employee Involvement, Safety and Health Training, Trending</li> </ul>
<b>Timothy J. Key</b> UAB School of Medicine	<ul style="list-style-type: none"> <li>Medical Programs</li> </ul>
<b>Alex Griego</b> DOE Albuquerque Operations	<ul style="list-style-type: none"> <li>Safety and Health Training, Emergency Preparedness and Response</li> </ul>



## Appendix II: DOE-VPP Update Review Team for WSRC: June 15-19, 1998

Name/Affiliation	Specialty	Area(s) of Responsibility
<b>Roy Gibbs</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Team Leader</li> <li>Coordination, Management Interface, Report Preparation</li> </ul>	<ul style="list-style-type: none"> <li>Overall Responsibility for all Elements and Sub-Elements</li> </ul>
<b>David Smith</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Assistant Team Leader</li> <li>Industrial Hygiene</li> <li>Focus on Changes Since Initial Onsite Visit</li> </ul>	<ul style="list-style-type: none"> <li>Overall Responsibility for all Elements and Sub-Elements</li> </ul>
<b>Glenn Florczak</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Construction Safety</li> <li>Training Program</li> <li>General Safety Program</li> </ul>	<ul style="list-style-type: none"> <li>Construction Safety Management</li> <li>Training Programs</li> </ul>
<b>Carlos Coffman</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Industrial Hygiene</li> <li>General Safety</li> </ul>	<ul style="list-style-type: none"> <li>Confirmation of Continued Correction of 90-Day Items</li> </ul>
<b>Sanji Kanth</b> DOE-HQ (EH-51)	<ul style="list-style-type: none"> <li>Preventive Maintenance</li> <li>Self-Inspections</li> <li>Program Evaluations</li> </ul>	<ul style="list-style-type: none"> <li>Confirmation of Continued Correction of 90-Day Items</li> </ul>
<b>Ron Gouge</b> Link Technologies, Inc. (Consultant)	<ul style="list-style-type: none"> <li>Employee Involvement Specialist</li> </ul>	<ul style="list-style-type: none"> <li>Worker Programs</li> <li>Employee Involvement</li> <li>Employee Reports of Hazards</li> <li>Disciplinary System</li> <li>Positive Reinforcement</li> </ul>
<b>Matt Fitzgerald</b> Scientech, Inc. (Consultant)	<ul style="list-style-type: none"> <li>Hazard Prevention and Control Lead</li> <li>Certified Industrial Hygienist</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive Surveys</li> <li>Access to Certified Professionals</li> <li>Methods of Hazard Control</li> <li>HAZWOPER</li> <li>HazMAT Medical Programs</li> </ul>

